FINAL REPORT OF INVESTIGATIONS

PHASE II INVENTORY INVESTIGATIONS FOR THE
LOCK HAVEN FLOOD PROTECTION PROJECT
CLINTON COUNTY, PENNSYLVANIA

VOLUME III

ANALYSIS OF NON-METALLIC AND METALLIC
HISTORIC/RECENT PERIOD ARTIFACTS
FROM SIX PHASE I INVESTIGATED STUDY AREAS

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A Report Prepared by

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and Submitted to

International Technology Incorporated
165 Fieldcrest Avenue
Edison, New Jersey [illegible]

In Partial Fulfillment of

Contract Number DACW31-85-D-0006
United States Department of the Army
Baltimore District, Corps of Engineers
Planning Division, Box 1715
Baltimore, Maryland 21203-1715

1 February 1989

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VOLUME II

ANALYSIS OF NON-METALLIC AND METALLIC HISTORIC/RECENT PERIOD ARTIFACTS FROM SIX PHASE I INVESTIGATED STUDY AREAS

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PREFACE

The following report is divided into two sections that discuss and describe separately the historic/recent period non-metallic and metallic artifact assemblages recovered during recently completed Phase I Inventory Investigations of six studies areas of the Lock Haven Flood Protection Project.

Part I deals entirely with the non-metallic historic/recent period artifacts. Included here are all artifacts manufactured from glass, ceramics, synthetics, wood, stone, shell, and bone. A miscellaneous category is also included representative of items made from brick/mortar, fabric, leather, or plant parts. Following a brief Introduction and an extensive discussion of the rational for the particular Analytical Methodology employed, the entire artifact assemblage recovered from the Green Property located within the East Water Street Reach is described. This assemblage of non-metallic specimens represents the single largest group of historic period artifacts recovered and analyzed from any individual property. Based upon the artifact content alone, this property appears potentially significant and warrents additional cultural resources management investigations. It should be noted that the majority of historic artifacts from the Green Property were recovered from a buried historical midden level or horizon situated ca. 40-50 cm below the present ground surface. Though designated as a buried A-horizon (i.e., Ab1) in Volume I, within the descriptive section of this volume the historic midden level is referred to as the A2 horizon. This historical occupation level was most clearly defined (i.e., produced the highest frequency of artifactual materials) within a 1m x 1m test unit excavated in the side wall of a backhoe trench situated on the eastern end of the Green approximately 25 m from the south bank edge of the West Branch of the Susquehanna River. The historic midden level was also encountered in several shovel test pits and auger probes excavated in various portions of the Green Property. Many of these test pits or probes did not produce artifactual materials because the midden level was often accompanied by the presence of an impervious ash/slag/plaster fill of both residential and industrial origin.

Following the description of the Green Property artifact assemblage, a section is included that provides the temporal range or ranges for select diagnostic artifact types. This information provides a preliminary indication for the possible existence within a particular reach or property of an appropriately dated assemblage of materials worthy of additional testing. Alternatively, this information can also have a bearing in assessing the extent of prior disturbance to a particular property, possibly precluding the need for any additional testing. The data on the temporal ranges of historic/recent non-metallic artifacts are summarized by study area, reach within study area, and by individual property and are illustrated in Figure 2. Conclusions that are drawn at the end of Part I of this report were made on the basis of the artifact content of properties alone and do not consider the availablility of

historical documentation to match discarded artifacts with their former users or other information in assessing the potential significance of a particular property. The final assessment of potential historical significance for a particular property incorporating all available information is provided in Volume I. An appendix (Appendix a) follows at the very end of Part I that displays the distribution and frequency of artifact types by study area reach and property.

Part II of this second volume deals entirely with the metallic historic/recent period artifacts. Included under the metallic heading are the following categories or types: Nails, Cut Nails, Wire Nails, Coins, Stainless Steel, Cans, Aluminum, Wire, Hardware, Slag, Unknown, and Miscellaneous. Following a brief Introduction and a presentation of the Analytical Methodology employed to categorize and interprete the metallic artifact assemblage, a brief discussion and overview are provided for certain artifact categories/types and particular properties that contained greater numbers of metallic artifacts. As was the case with the non-metallic artifacts, the presence or frequencies of metallic artifacts does not form a basis alone for a determination of potential significance or insignificance. Rather other documentary evidence was considered in conjunction with the real and potential artifact content of a property. The evaluation of potential historical significance of investigated properties with or without metallic artifact assemblages is presented in Volume I. The metallic artifact section ends with a series of appendices that display the frequency and distribution of the metallic artifacts by study area, reach within study area, property, and/or excavation unit.

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INTRODUCTION

A total of 1826 non-metallic artifacts ascribable to the Historic Period were recovered during Vendel Enviro Consultants' archaeological investigations at 65 locations in the Lock Haven/Lockport area of Clinton County, Pennsylvania. The table presented in Appendix A concerning the distribution of artifacts, itemizes the distribution of the recovered historic period artifacts in each of these surveyed areas. Each specimen has been categorized under one of eleven material classifications. Figures nos. 1a and 1b graphically demonstrate the distribution of the historic period artifacts on the basis of material composition, and again, the expanded table in Appendix A demonstrates those material classifications as they relate to locations within the study area. An abbreviated, tabular demonstration of major compositional classes is as follows:

Glass	1027	56%
Ceramic	455	25%
Synthetic	38	2%
Wood	28	2%
Stone/Slag/Coal	14	1%
Shell	34	2%
Bone	170	9%
Miscellaneous	60	3%
TOTAL	1826	100%

Sprague (1980) indicates that typologies based on an artifact's techno-morphological characteristics are grossly inadequate when dealing with historic period artifact assemblages. Specimens were analytically divided beyond their material of manufacture. Subsequent

divisions first involved functional categories, (ie. DOMESTIC FUNCTION CONTAINERS) and then functional sub-categories of individual form types, (ie. Preserve Jar). Artifact assemblages were analyzed in terms of the minimum number of parent forms that could be represented by specimens in respective groupings, whenever possible. These parent forms, or "minimum number of individual forms" are the true basis of analysis since it is the complete form, not the individual fragment, that reflects the most information about its human consumer and possible site utilization. The methodology involved in the assessment of the minimum number of individual forms (MNIF) is discussed below.

The descriptions of the specimens and individual represented forms are presented below with comments on the historic background or morphological information when appropriate. A cursory examination of the entire Lock Haven/Lockport Study Area historic period artifact assemblage indicated to this analyst that only one of the test loci warranted a full narrative description of their contents. The remainder of the sites demonstrate assemblages which are too diminutive or are comprised of primarily non-diagnostic specimens. These assemblages from these study area locations, however, are considered for any information they may offer toward associated dates. Therefore, all of the loci, with the exception of The Green, which is discussed in full analytical narrative and tabular format, are discussed in regard to the range of dates during which associated, represented forms may have been utilized and/or deposited at particular locations.

Figure 1a:
Non-metallic Historic Period artifact specimens respresented by material classification

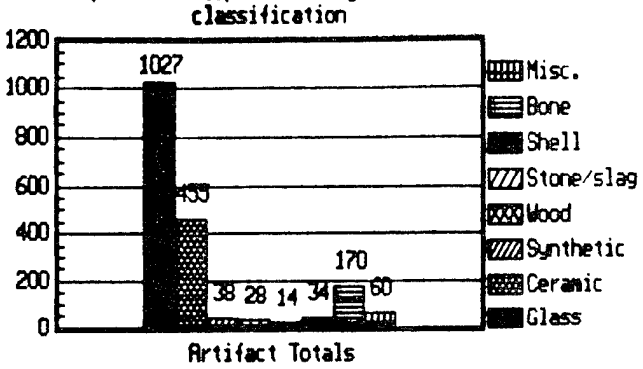


Figure 1c:
Comparison of Non-metallic Historic Pd. specimen and M.N.I.F. totals by material classification

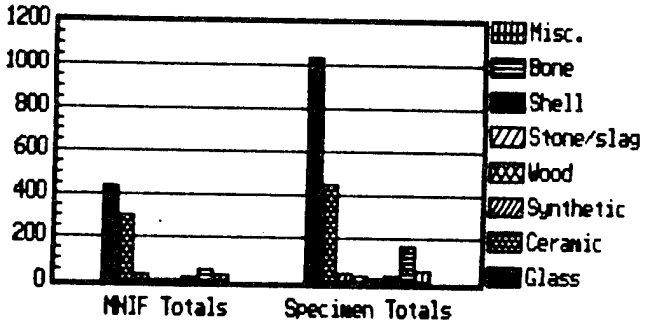
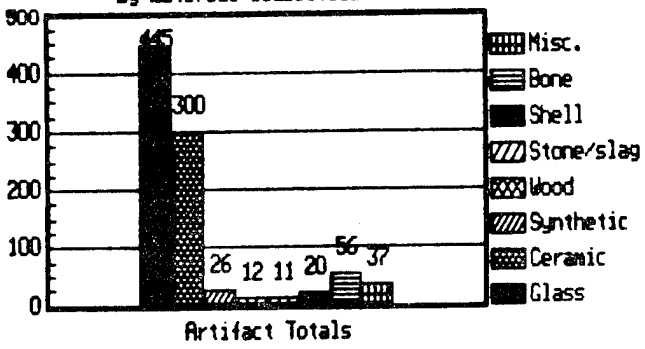


Figure 1b:
Non-metallic Historic Period artifact minimum no. of individual forms by material classification



ANALYTICAL METHODOLOGY

All of the historic period artifacts recovered from the Lock Haven/Lockport Study Area were initially inspected and divided by site into one of eleven classifications based on upon material of manufacture. These classes include ceramic, glass, metal, synthetic (plastic, nylon, styrofoam, etc.), wood, bone, shell, stone, brick/mortar, fabric, leather, and nuts/seeds. Attempts were made to temporarily cross-mend associated ceramic fragments which exhibited "joinable" breaks. This was initiated to obtain a clearer understanding, not only of the minimum number of individual forms in the assemblage but also, to elicit any possible patterns of spatial and/or temporal utilization of each site. The temporary mend of the artifacts was accomplished by taping the artifacts with a transparent, cellophane adhesive tape until the analysis was completed on the extant portion of the represented form.

An estimate of the minimum number of ceramic vessels represented in the assemblage was made in an attempt to examine the intensity of site utilization during the Historic Period. Minimum numbers of ceramic vessels were counted by first assessing rims from obviously different pieces. Body shards of a given type were included in estimating the minimum number of vessels where thickness, glaze or other physical characteristics suggested that the shards did indeed represent different vessels. Undecorated ceramic shards were evaluated on the obvious criterion of whether the shard itself showed any signs

of decorative treatment. The absence of decoration from any given shard did not, of course, mean that the ceramic piece to which it belonged was not decorated. Although a formal artifact analysis form was not used in the analysis of ceramic, as well as synthetic, wood, architectural material, bone and shell material, their assessment and semantics used in their written descriptions correspond to the general analytical process described below for glass artifacts.

This researcher's concentration on glass as an analytical specialty is reflected in a particular methodology developed from experience in analyzing several other Historic Period assemblages. Typically, the glass artifacts would have been cross-mended, when appropriate, using an epoxy recommended by collections conservators. Those reconstructed forms represented in the Lock Haven/Lockport sites were temporarily reconstructed in the same manner described above for represented ceramic forms because of temporal and fiscal constraints. The assessment for whether individual specimens were associated to, or represent, individual glass forms, first involves the distinction between broad functional categories such as flat glass, glass containers, or miscellaneous glass objects. To continue this example, each specimen is further evaluated and associated, where possible, on the basis of color, thickness, shape, matrix defects and surface damage. Where the origin of a specimen is uncertain, that fragment is classified under an appropriate residual category such as "Rectangular or square bottles of unidentified origins," "Cylindrical bottles of unidentified origins,"Curve-walled containers of unidentified origins,"

or "Miscellaneous Neck/finish fragments." A final alternative for these types of specimens are classifications as "Unidentified and unassociated glass specimens." An analysis based on the individual, represented form reveals a more realistic assemblage of at least 445 represented parent glass forms rather than the misleading total of 1027 individual specimens.

Each of the 445 glass forms represented by cross-mending specimens and/or associated specimens were analyzed on the basis of their respective techno-morphological attributes. The thickness, color and possible deformities in the matrix and /or surface of each flat glass specimen was also recorded. The remainder of the represented glass forms were examined via one of three University of Pittsburgh Archaeology Laboratories Glass Analysis forms. Free or mold blown glass containers were first assessed on their completeness and whether they were reconstructed. The color of each form was then considered and recorded in very general terms under indoor, tungsten lighting and in the absence of natural light via windows or artificial light other than tungsten. The presence/absence of associated closures was noted and the type of closure commented on if applicable. Characteristics associated with the basal portion of each represented form were also noted and the method of manufacture that was suggested by these and other characteristics. The shape of each individual form was recorded by vessel segment on what the theoretical appearance of that segment would be if the form was cross-sected vertically (profile) and horizontally (plan view). The measurement of each form included, where

possible, its capacity, maximum height, extant height, the position or extant height of the form's vertical seam line, the interior and exterior diameters of the aperture and the form's basal dimensions. The extant heights of several represented forms of non-crossmending, associated specimens were determined by the combination of vessel segment heights where it was known that these segments did not overlap in theoretical reconstruction. Any visible damage to the surface of a represented container was also recorded. The function of each container was determined by using historical documentation, product label information and in some instances, techno-morphological characteristics such as color and shape. Comments such as those of Roderick Sprague (1980:252) on the necessity of functional classifications over techno-morphological typologies have definitely influenced the analysis of glass artifacts from the Lock Haven/Lockport study area. Specimens were analytically divided beyond their material and morphological attributes into the functional classifications and categories illustrated in Table no. 1. Associated historical information such as a product label or glass maker's mark was recorded in detail. The conventions used here to describe labels or trademarks are as follows: quotation marks (" ") enclose all historical information discerned on the container labels. Within the quotation marks are the actual words, abbreviations and punctuation as they appear on the artifacts. In cases of fragmentary labels or marks where incomplete historical information occurs, brackets ([]) enclose letters, words or phrases which are known, from other sources to complete the labels. Ellipsis points (. . .) indicate portions of

label information which are absent or missing from an examined specimen due to breakage. The use of a virgule (/) indicates that a new line of information begins on the label. The initial analytical documentation of each container concludes with miscellaneous comments.

Occasionally, the term "interpreted form date" will be referred to during comments pertaining to adequately diagnostic glass forms:

> An important aspect of the glass analysis and this discussion involves the development of a method for determining the dates of the functionally diagnostic forms from each site. Toward this end, the "interpreted form date" was conceptualized. The techno-morphological attributes and/or historical documentation of a form are considered and integrated to obtain a form's interpreted form date.
>
> The interpreted form date is determined by interpolating the median date of the probable time period during which a particular morphological attribute was technologically incorporated, and/or the associated product was manufactured. For example, one particular bottle (Mrs. Winslow's Soothing Syrup exhibits techno-morphological attributes such as an embossed label (1860-1915), an open or rough pontil scar (1810-1870), an applied lip (1850-1913), and mold line from manufacture in a two piece mold (1845-1913) (Newman 1970). The date range that is common to all of these attributes is 1860-1870. The product label on this same form indicates a product that is known to have been sold from 1849 to 1862. The date range which is common in relation to the form's morphological attributes as well as the represented product is 1860-1862. The interpreted form date is the median date of this interpreted range (1861). If only a morphological date range or an associated product date range is available, the median date of the available range is the interpreted form date. Interpreted form dates such as 1845.5 are rounded off to the next highest whole number (1846) to simplify coding for computerization.
>
> (Hochrein 1986:135)

The analysis of represented pressed glass forms, via the University of Pittsburgh Archaeology Laboratories Pressed Glass Analysis Form, and the application of the University of Pittsburgh Archaeology Laboratories Miscellaneous Glass Object Analysis Form involve formats similar to that described above for glass containers. All of the glass artifacts recovered from the Lock Haven/Lockport Study Area are discussed below by major functional classifications.

Synthetic, wood, architectural material, bone and shell were all assessed primarily on the basis of function as in the cases of the major material classifications discussed above.

The artifact descriptions will initiate with the analytical narrative of those Historic Period specimens recovered from The Green. Each of the other Lock Haven - Lockport study area location assemblages are discussed in regard to temporal information provided by the selected examination of temporally diagnostic artifacts. The report concludes with a summation of the information provided, by the Historic period non-metallic artifact assemblage, toward possible site utilization and chronology.

ARTIFACT DESCRIPTIONS

Study Area: The Green

Reach: East Water Street Reach

Historic period artifacts that were recovered from "The Green" comprise the largest site specific assemblage of artifacts from the Lock Haven-Lockport research survey area. As such, it was decided that the most potential for the most significant interpretations of all assemblages could be garnered from that of "The Green." A total of 200 historic period artifacts were recovered from the study area. Seventy-three percent or 146 of these artifacts consist of glass forms. The remainder of the artifacts comprise the following basic material classifications:

Ceramic	22	41%
Bone	12	22%
Shell	19	35%
Architectural Material.	1	2%

The glass artifacts which represent the largest percentage of recovered artifacts and represented forms is further divided into the following primary functional classifications:

Container Glass. . . .	45	31%
Flat Glass	73	50%
Pressed Glass.	13	8%
Miscellaneous Glass. .	15	10%

The following descriptions include further refinement of classifications among the glass and ceramic represented forms into specific, secondary functional groupings.

HISTORIC PERIOD GLASS ARTIFACTS

This research is not intended to include a general history of glass-making. The artifacts discussed in subsequent sections of this analysis reflect what might be called a "technological evolution" that continues to take place in glass production. The location of the artifacts in archaeological sites in Pennsylvania, would strongly argue for a Pennsylvania base of manufacture for the represented glass forms. This assumption is quite valid given the predominance of Pittsburgh glass manufactories during the nineteenth, and early twentieth centuries. The following summary will consider the development of the western Pennsylvania glass industry. The evolution of technology in the container glass and flat glass industries will be discussed without regard to geography since these developments were influential throughout the industry.

Bining (1936:appendix) lists a total of 188 glass manufactories as operating in western Pennsylvania between 1797 and 1860. The significance of the glass industry in western Pennsylvania has been outlined by Bining:

> The rise of the glass industry in western Pennsylvania was significant for at least three reasons: (a) it originated at a time when the glass industry in the East had not yet become firmly established; (b) it began in a frontier region situated several hundred miles from the settled communities of the East; and (c) it marked the beginning of a new industry west of the mountains.
>
> (Bining 1936:1)

The frontier, or remote situation of the western Pennsylvania glass industry included exclusive access to a river system that was crucial in the transport of raw materials and finished products. Initially, Pittsburgh's location at the headwaters of the Ohio River presented the opportunity for developing trade with settlements along the Ohio and Mississippi Rivers. Until commercial development of settlements, and the advent of more sophisticated river transportation, the

direction of trade flows were oriented downstream. The demand for supplies from the east for Pittsburgh and developing downstream communities, placed Pittsburgh in a strategic position as a consumer and trade medium for eastern produced commodities. The cost, scarcity of western money, and/or the logistics of transporting these goods over the Allegheny Mountains provided an impetus for Pittsburgh industries to develop independent of eastern industries. One of the initial industries to develop involved glass articles. The demand of glass in the frontier community is reflected in Bining's statement:

> Such a fragile article as glass could not be carried with them on their arduous journey into the wilderness. The windows of their temporary cabins, when windows were used at all, were made of paper or white linen oiled with lard or bear grease. Sometimes shutters made of clapboards were their only protection against the weather. Glass containers were unknown for tableware, and in most cases only wooden bowls, trenchers, and noggins served the table of the frontiersman; gourds and hardshelled squashes were used when nothing better was available in his primitive environment.
>
> (Bining 1936:1)

The histories of a few prominent Western Pennsylvania glass manufactories will be highlighted in order to acquire an understanding of the development of the glass industry on the nineteenth century frontier.

The reasons mentioned above, (logistics and cost) provided the developmental impetus for the first glass manufactory in Pittsburgh. James O'Hara's first venture into the production of glass items constituted a commercial failure. O'Hara was present at Fort Pitt in 1773, served in the Revolutionary War and returned to Pittsburgh to establish the predecessor to the Pittsburgh Glass Works on a tract of land below the community of Allegheny and along the Ohio River. He acquired the property during his stay at Fort Pitt. Unfortunately, the construction and operation of the manufactory depended on the "expertise" of

incompetent glass-men. As a result, the first and possibly last bottle produced in the operations was manufactured at a cost of $10,000. The production of cylinder window glass was only slightly more successful (McKearin and Wilson 1978:60-61).

Start-up costs once again plagued James O'Hara who joined with Major Isaac Craig in 1796 to establish a new manufactory with an eight-pot coal-burning furnace. The cost of hiring and housing qualified eastern glass-men, as well as the need to import pot clay from the east, and personality conflicts among the employees, proved excessive for the new business.

The location of this new business was decided upon with advice from Peter William Eichbaum, a former employee of Nicholson's Glass factory of Philadelphia. The building site was located on Coal Hill near Ward's pits because of its proximity to a coal vein (McKearin and Wilson 1978:61).

The departure of Eichbaum from the glassworks circa 1800, due to professional conflicts with other glassmen in the business, began a decline in the company's production (now leased to F. Wendt & Company). A highly qualified English glassman, William Price, was hired in 1800 to perfect the production of "white glass" at the glasshouse. Delays in the perfection of a suitable process apparently made Craig uneasy. In 1804 O'Hara became the sole proprietor of the Pittsburgh Glassworks. Additional professional conflicts involving Wendt left O'Hara without the expertise of qualified glassmen in 1805 (McKearin and Wilson 1978:62-63). The acquisition and departure of glassmen at O'Hara's Pittsburgh Glass Works seemed continuous between 1805 and 1812. Production at the

glassworks did increase until the 1812 depression. The success of white glass production apparently infringed upon the market enough for an agreement to be made between the Pittsburgh Glass Works whereby O'Hara would no longer produce white glass.

In 1819 James O'Hara died. Control of the Pittsburgh Glass Works was left in the hands of Frederick Rudolph Jaocim Lorenz who, along with Charles Impson (Ihmsen), had been acquiring more responsibility as O'Hara's health was failing (McKearin and Wilson 1978:63). Lorenz continued as sole proprietor of the establishment until 1841 when he joined with William McCully and Company (McKearin and Wilson 1978:63). Lorenz and Thomas Wightman joined to take over the business (Lorenz and Wightman) in 1851. In 1854 Frederick Lorenz died and his son Frederick R. Lorenz entered the firm. Fahnstock, Albree and Company leased the firm until 1860 when Moses A. Lorenz entered the firm. Fahnestock, Albree and Company leased the firm until 1860 when Moses A. Lorenz, Thomas Wightman and Alexander W.K. Nimick established a new Lorenz and Wightman. The firm of Thomas Wightman and Company was in operation from 1871 until 1886 (McKearin and Wilson 1978:63). Glass articles which were produced at the Pittsburgh Glassworks during its varied history include an array of window glass, holloware and flasks.

The New Geneva Glass Works or Gallatin Glassworks of Greenboro, Pennsylvania is another prominent manufactory which helped initiate the development of the glass industry in Western Pennsylvania. McKearin and Wilson (1978:65) dismiss the romantic description of the New Geneva's inception via a coincidental meeting between Albert Gallatin and journeying glassmen. Rather, a postscript to a

letter between Gallatin and a business associate named John Badollet offers the first known documentation of the Gallatin Glass Works:

> Since signing my letter we three [Badollet, Bourdillon, and Cazenova, all members of Albert Gallatin and Company] unanimously have begun an affair which can furnish the counterpart to the preceding reflexions and afford some comfort. It is no less than an undertaking of glassworks. Six Germans containing all the necessary workmen we are trying to deal with and have a well grounded hope of success. Such an undertaking considered either in a public or private point of view ought to supercede every other we will attend to it with the utmost of our abilities and by report inform you of the success.
>
> (McKearin and Wilson 1978:65)

On September 20, 1797, Albert Gallatin and Company was formally agreed upon in the names of Albert Gallatin, Louis Bourdillon, John Badollet, John W. Nicholson, Charles Casanova, as well as glassblowers named George Kramer, and George Reppert (McKearin and Wilson 1978:65). Apparently, production problems and technical problems such as melting pot failures which were common to the infant glass manufactories, also affected New Geneva (McKearin and Wilson 1978:66).

The New Geneva Glass Works involved a much less varied managerial history then the Pittsburgh Glass Works. However, there were changes. The first alteration in ownership occurred circa 1798 when Albert Gallatin and Company dissolved and Gallatin was joined by John W. Nicholson. The burden of managerial responsibility on Gallatin, who was also politically active weighed heavy. Relief was forthcoming with Gallatin's employment of Ami Mussard. Mussard offered improvements through his advice that concerned batching techniques and ingredients. His advice on the company's sales techniques met with more varied success (McKearin and Wilson 1978:66). In May of 1798, however, managerial

conflicts apparently culminated in an announcement of the partial auction of the enterprise. A new four year agreement between Gallatin and his employees was reached. In 1806 plans were discussed for the construction of a new glass house which would be located across the Monongahela, at Greensburg (McKearin and Wilson 1978:67). Account books indicate that production began at the new works in late 1807 or early 1808 (McKearin and Wilson 1978:67). The decision to locate the glasshouse at Greensburg was primarily based on the availability of coal deposits in the vicinity. The success of a coal operated plant is reflected in a January 24, 1816 entry in the Gallatin records:

> The experiment made with coal at the new glass works has exceeded our expectation. It makes glass of equal good quality as formerly and the saving od expense will be very very great.
>
> (McKearin and Wilson 1978:67)

The glass company assumed the name of B.F. Black and Company circa 1830. In 1837 Andrew and Theophilus Kramer are said to have rebuilt the firm's glasshouse. Another version of the company's later history involves the construction of a second manufactory by Andrew Kramer, Theophilus Kramer and Philip Reitz. These works were operated until 1857. Yet another version indicates that the glasshouse was destroyed by fire in 1847 (McKearin and Wilson 1978:67).

Bining's (1936:10) description of the original New Geneva glasshouse gives an indication of the architecture and capabilities of the earliest glasshouses in Western Pennsylvania:

> The original factory of the New Geneva Glassworks measured 40 X 40 feet; three sides were made of wood, while the other was made of stone. The furnace was small, containing eight pots which melted glass for windows, bottles, and various types of hollow-ware, similar to the products manufactured at O'Hara's works at Pittsburgh. Some of the raw materials necessary were found in the vicinity of the works. These included sand

> and limestone, wood for fuel, and ashes for alkali. The price charged for window glass was very high from $14 to $20 a box of 100 square feet, . . .
>
> (Bining 1936:10)

The Pittsburgh enterprise of George Robinson and Edward Ensell manufactured the first flint or tableware items in the Western Pennsylvania region. The Robinson and Ensell works were constructed in 1807 on the northern banks of the Monongahela River (Bining 1936:12). This new firm operated for one year when it became reorganized by Benjamin Bakewell, Edward Ensell, Benjamin Page, and Robert Kinder and Company of New York. Bakewell and Ensell produced an array of pressed glass containers. In 1809 the company reorganized once again under "B. Bakewell and Company." The reorganization included an expansion of the works from a six pot capacity to a ten pot furnace. Benjamin Bakewell's son, Thomas, entered the business in 1813 under a third reorganization. The company was known as Bakewell, Page and Bakewell during this phase of its history (Bining 1936:13). Among the firm's accomplishments was the production of the first table service for a President of the United States (Monroe in 1817 and Jackson in 1829). The company also earned an American patent for a pressed glass process in 1825, an honorable mention for cut glassware at the 1824 Franklin Institute glass exhibition, and a silver medal during the Institute's 1825 glass exhibition (Innes 1976:28).

The success or attempts to succeed by pioneer companies such as the Pittsburgh Glass Works, the New Geneva Glass Works and The Bakewell enterprise, spirited the rise of many more glass manufactories throughout the eighteenth and nineteenth centuries Western Pennsylvania frontier.

The location and availability of raw materials for glass production was one factor which singled out the tri-state area of West Virginia, Ohio and Pennsylvania as an ideal location for glass industry. The factors of transportation, labor and the availability of markets have been briefly considered above. However, the acquisition of raw materials and fuels (the natural resources) warrants further discussion.

Numerous fluxing, coloring and decolorizing agents are included in glass batch recipes. The primary ingredients of each batch are silica sand or silicon dioxide and soda ash, or lime. Silicon dioxide involves a basic tetrahedral structure in its crystalline form as sand. When transformed into glass the triangles of oxiginators arrange themselves irregularly and allow for a more open structure of the crystalline form. The allowance for irregular arrangements allow for the random formation of a glass object (Frank 1982:8). Pure silica glass, although it can be randomly formed, involves a structure that is tightly braced because the band between the silicon atom and the three oxygen atoms around it are strongly directional. Extremely high temperatures (circa 1700 C°) are required to disrupt the directional structure. The addition of substances such as sodium oxide or calcium oxide allow glass to be molten and remain at much lower temperatures, thus improving the commercial capabilities of working with glass (Frank 1982:9-10). The effects of impurities in silica sand sources on the production of glass, will be discussed in light of glass matrix color.

Initially, sand for glass production was acquired from fluvial deposits. Impurities such as iron oxide in those deposits produced an undesirable brown or green color in the finished products. Sand from the Monongahela district proved

to be more pure than the deposits initially used in Western Pennsylvania. The discovery of the white sands of Missouri insured the evolution of increasingly better quality glass items, but it was not until the opening of the Huntington and Hancock quarries, that Pittsburgh manufactories' positions as leaders in the glass industry were established, partly because of these local resources (Bining 1936:16). The two main sources of glass sand during the twentieth century included deposits in the vicinity of Mapleton, Pennsylvania and Berkley Springs, West Virginia. The sand in these areas is known as Oriskany Quartzite. Weiner's 1945 description of the processing of the Oriskany deposits may have been similar to, albeit not as mechanized, quarrying methods used earlier in the century.

> The sand is blasted from the cliffs and crushed to a small size. It is then transported, by conveyer belt to gyretory crushers where it is again ground into very small grains. The sand is washed several times to free it from clay. next, it is drained, placed in driers and put through a final screening to eliminate any remaining lumps. The sand is finally passed over magnetic rollers in order to reduce the iron content. From here it is ready for shipment.
>
> (Weiner 1949:26)

A third modern source of industrial glass sand is located in Ottawa, Illinois as part of the St. Peter sandstone of the Mississippi Valley (Weiner 1949:26).

Alkali, referred to as "soda ash", "potash" and the more refined "pearl ash", was initially manufactured through the combustion of wood. Ample timber was available in the times of the Pittsburgh and New Geneva glass works (Bining 1936:14-15). Alkali deposits that have been exploited during the twentieth century, and possibly the nineteenth century, are located in areas of Eastern Ohio around Painesville, South Point, and Barberton (Weiner 1949:27). Even in earlier times, alkaline salts were transported by boat from the Ohio country (Bining 1936:19).

Limestone, as a fluxing agent in the batch, is and was available throughout the Tri-state areas. Weiner (1949) refers to modern deposits and processors in Gibsonburg, Ohio; Wendville, Ohio; Findlay, Ohio; Delaware, Ohio and Bellefonte, Pennsylvania.

Two additional raw materials, clay and lead, were very important in the production of glass during the inception of the industry. Lead was required for the manufacture of flint glassware, while particular clays were necessary for the construction of melting pots or "furnace crucibles." A high quality clay ensured the longer life of the crucible and prevented transfer of impurities to the batch materials. Initially, suitable clay had to be transported to western Pennsylvania in barrels from New Jersey. "In the actual shipping of clay great care was necessary. It was shipped in lumps, as large and solid as possible, at the time of the year when there was no danger from frost, because the clay would spoil if shipped during cold weather." (Bining 1936:19-20). Clay from England, Germany, and Holland was utilized at the turn of the nineteenth century because of its even higher qualities. Eventually, clay acquired from Missouri was used (Bining 1936:20).

The process of incorporating lead into glass batches to result in a higher quality of glass was first perfected by George Ravenscroft in England during the seventeenth century (McKearin and Wilson 1976:11). Lead glaze, which adopted the name of "flint glass", although it was not true flint glass, was usually reserved for the production of quality tableware. The acquisition of lead for glass production was stressed by O'Hara who recognized that the nearest sources were in Illinois along the Mississippi River (Bining 1936:18). Lead was shipped from

this area to Pittsburgh where red lead factories began to evolve for its refinement. Circa 1810, a red lead factory was established in St. Louis, Missouri by Joseph Herzog. This enterprise helped to satisfy Pittsburgh glassmaker's demands (Bining 1936:13).

The compilation of the basic ingredients discussed above and several other agents varied among glassmakers. Their individual glass recipes were often closely coveted. Methods for producing the heat necessary to send batch ingredients into a molten state require additional natural resources. The circumstances involved in the evolution of the Pittsburgh Glass Works, the New Geneva Glass Works and probably most early manufactories in the Tri-state area refer to the necessity for a location near adequate deposits of coal. Craig and O'Hara's original works on the west side of the Ohio River apparently relied on wood to fire the furnaces. The enterprise's move to Coal Hill in 1797 marked the advent of coal utilization in the glass industry. "It was not until 1810 that glasshouses outside of the Pittsburgh area began to use coal as fuel. Around this time the opening of Virginia and Cumberland mines presented ample supplies of bituminous coal. Anthracite began to be used in some areas during the 1850s and by 1860 only one New England firm continued to burn wood." (Scoville 1944:207). The abundance of coal in the Pittsburgh region, and the glass industry's concentration near these reserves should not require further explanation.

E.L. Drake's discovery of oil near Titusville, Pennsylvania in 1859 resulted in the initially unappreciated discovery of natural gas. Natural gas's applicability to the glass industry was soon realized. This fuel proved much

cleaner than coal which often discolored batches via smoke and pyrite fragments. The corrosive effects of coal fire, which was lacking in natural gas us,e shortened the life of the crucibles and furnace walls. Another advantage of natural gas was the uniform, intense and regulatable characteristics of its heat. Cost efficiency was probably the most important advantage of natural gas. As compared to gas furnaces that were fired directly with coal, natural gas furnaces consumed "smaller quantities of coal. . . but also the cheapest grades could be burned in their gas producers." (Scoville 1944:209). The Rochester Tumbler Company of Pittsburgh was the first enterprise to note the utility of natural gas and drilled its own well in 1874 (Innes 1976:45).

In addition to the competition generated within the expanding population of local glass companies, foreign competition entered the glass market after the War of 1812.

Great Britain was the primary foreign competitor with the western frontier companies for the American glass market. English goods were dumped on the American market until the advent of political-economical policies toward the protection of domestic industries. The first attempt at such a policy, the Tariff of 1816, did not require duties deemed high enough by glass manufacturers:

> . . . window-glass was to be taxed at the rate of thirty percent ad valorem, because it was considered an article already produced in sufficient quantities to satisfy the home demand, and thus one which should be thoroughly protected. All other kinds of glass, except window-glass and phials, because they were produced in small quantities, were to be taxed only with a view to securing revenue. The specific duty on black quart bottles was to be $1.44 a gross; on window-glass not above 8 X 10 inches, $2.50 a hundred; on that not above 10 X 12 inches, $2.75; and on that above 10 X 12 inches, $3.25.

(Bining 1936:43)

Henry Baldwin, a federalist candidate in the election of 1818 and a Pittsburgher, supported and designed the second attempt at the commercial protection of the local glass industry. Congressional approval of Baldwin's bill was not forthcoming until 1824 with the passing of the Tariff Act of 1824:

> This act was less protective than the original bill presented to Congress, but it increased the duties on glass considerably and proved satisfactory to manufacturers of western Pennsylvania. The duties on the window-glass, not above 8 X 10 inches was raised from $2.50 to $3.00 per hundred square feet; on glass bottles, not exceeding one quart, the duty was changed from $1.44 per gross to $2.00; on bottles exceeding a quart capacity but not more than two quarts the new duty was $2.50; while bottles over two quarts, but not exceeding one gallon the new duty was $3.00. On cut glass the new act levied a duty of three cents a pound, in addition to the thirty per cent ad valorem duty.

(Bining 1936:54)

The Tariff of Abominations, was so-called by the anti-protectionists, who thought the introduction of the bill was too extreme to pass in 1828:

> The duty on window-glass 10 X 15 inches, which under the Tariff of 1824 was $4.00 per hundred square feet, was raised to $5.00 under the new act; and on apothecaries' vials, not exceeding six ounces was raised from $1.25 to $1.75 per gross.

(Bining 1936:57)

The Tariff bill was once again revised in 1832. The revision, however, involved reductions in tariff. The final political activity, which negated the effects of the 1828 and 1832 Tariff Acts within South Carolina's borders, is known as the Ordinance of Nullification. At the same time, Henry Clay proposed an industry-wide compromise measure which would reduce the tariff to the 1816 rate over a ten year period. This, in effect, meant that the financial advancement that was spurred on by the 1824 and 1828 tariffs would be eliminated by 1842 (Bining 1936:62). Fortunately, the 1824 and 1828 tariffs had allowed the

Western Pennsylvania glass businesses to develop into a productive and stable industry. This is evidenced by the exportation of American pressed glass items to Europe (Bining 1936:62-63).

Increased competition within America was a reflection of the development of transportation links from the east to the west. According to Bining (1936) there were routes which affected the development of competition around the Pittsburgh region. These routes included the construction and/or improvement of the National Road, Erie Canal, the Pennsylvania Canal, the Pennsylvania and Ohio Canal, and the Monongahela River (Bining 1936:64-79). During the period between 1837 and 1860 the development of effective railroad systems throughout the nation resulted in a stabilization of the glass industry within Pennsylvania.

The National Road afforded glassmakers of Wheeling, West Virginia with a means of transporting raw materials and the products they manufactured. The Erie Canal broaden New England glassmaker's markets to regions south of the Great Lakes (Bining 1936:64). The antagonism between Pittsburgh and Wheeling over trade was apparently present prior to the construction of the National Road:

> The goods intended for New Orleans, Kentucky and Tennessee markets are principally shipped off from this place, although, during the dry season, which generally prevails in the months of August and September, the waters are so low that a loaded boat cannot descend the river. Those, who are accustomed to navigate this river, always make their calculations accordingly, and when they find they will not be enabled to reach Pittsburgh in time, generally order their goods to Wheeling, another town, lying about ninety miles lower down the river, from where the water is deep enough at all seasons of the year.
>
> (Schultz 1810:125-126 in Bining 1936:65)

The completion of the National Road to Wheeling in 1822 combined with the successful navigation of the river system via steam-powered vessels to make Wheeling a port as attractive or even more so then Pittsburgh (Bining 1936:64-68). Pittsburgh manufacturers held Philadelphia responsible for the construction of a transportation system which would return Pittsburgh to a competitive situation (Bining 1936:68). The completion of the Pennsylvania Canal in 1834 from Pittsburgh to Philadelphia was one step in this direction (Bining 1936:69-71). Although the Pennsylvania Canal System proved vital as an east-west trade route, new markets south of the Great Lakes could only be exploited most economically by way of the Erie Canal. To remedy the situation the Pennsylvania-Ohio Canal was constructed between 1836 and 1840. It offered a connection to Lake Erie via Portsmouth, Ohio and Cleveland. Improvements to the Monongahela River comprised the third phase of transportation-oriented construction which was designed to reestablish Pittsburgh's competitive commercial stance. The improvements which included the construction of dams was completed in 1844:

> Pittsburgh was now brought within thirty hours of the Atlantic seaboard by means of an improved route which included the Monongahela to Brownsville, the National Road between Brownsville and Cumberland, and finally the Baltimore and Ohio Railroad to the coast. Pittsburgh glassmakers were not only aided in the exchange of finished products and raw materials with the East, but also in meeting the competition of Wheeling and the towns along the Ohio River below Pittsburgh.
>
> (Bining 1936:78-79)

The three transportation projects referred to above were very successful. The major limitations however, involved the periodic inability to navigate the Ohio River because of low pool level. Improvements in steamboat construction was a partial remedy to the problem. However, in times of extreme drought, pool levels were also affected in the canal systems (Bining 1936:96-100).

The construction of the Pennsylvania Railroad system throughout the Pittsburgh area, circa 1850, created the most efficient means of transporting raw materials and finished products. However, its development was met with some reluctance since it was clear that the canal systems would be rendered obsolete through its operation. The construction of an efficient railroad system ultimately stabilized the Western Pennsylvania glass industry for the remainder of the nineteenth century and into the twentieth century (Bining 1936:101-107).

The discussion above, of historical geography, as it pertains to the evolution of the glass industry in Western Pennsylvania, has dealt primarily with the early period of the industry s growth. This section is concerned with major technological developments in the glass industry and as such will cover the industries development during the later part of the nineteenth century and the early portion of the twentieth century. This discussion will refer to areas outside of the Western Pennsylvania region since developments in the industry's technology were applicable world-wide.

The simplest, yet slowest, methods of bottle production is known as free blowing and dip mold blowing bottles produced via this process are represented in the Gateway Center glass assemblage. McKearin and Wilson outline the process:

> (1) the first step . . ., was gathering the requisite amount of metal on the blowpipe -- . . .
> (2) . . . , the blower might simply rotate the pipe slowly, allowing the red-hot gather to cool slightly on the outside and to sag, usually the gather was rolled on the marver. . . to give a cylindrical or ovoid form. . .
> (3) The next step was the 'puff.' the gatherer blew into the pipe to form an internal central bubble.
> (4) Next, the gather was further expanded, and (a) to ensure uniformity was sometimes turned in a wooden block . . . . Or

> (b) if the bottle was to have a pattern-molded reticulated design, . . ., was placed in a small two-piece mold, and the leaves closed upon it, thus impressing the design in the soft metal; or if a large piece mold was used, the gather was expanded against the patterned sides of the mold by blowing. Or (c) if a ribbed pattern was desired, the gather might be expanded in a fluted dip mold or more likely, the gather was forced into the mold before expansion. . .
> (5) Then, by blowing and manipulation, the body form and neck were fashioned and the bottom of the bottle flattened, . . .
> (6) Next, one of the irons was attached to the center bottom of the bottle and the bottle whetted or cracked, off the blowpipe by touching the hot glass near the end of the pipe with a tool dipped in cold water. At this point, too, by pushing inward when attaching the iron, a kickup could be formed in the bottom of the bottle. When the bare pontil was used, it might leave an oxide deposit on the bottom when separated from the bottle; or before attaching the pontil, its end might be dipped in the pot to coat it with molten glass, in which case it would leave a rough mark or scar; or the glass-tipped end of the pontil might be lightly coated with sand, and so leave a slight grainy matte mark when it was cracked off.
>
> When the blowpipe itself was used as a pontil, the bottle was first cracked off into a 'cradle' or onto sand. The moile (glass left on the end of the pipe when the bottle was cracked off) served to make a band with the bottom of the bottle; it left a rough ring of glass.
>
> (McKearin and Wilson 1978:12-13)

It is practically impossible to pinpoint a date range for the free-blown manufacture of containers. Essentially, this method has been in use since the invention of the blowpipe, approximately the first century B.C.. Requirements of larger production quotas and uniform container configurations (i.e. capacities), resulted in the increased obscelesence of free-blown manufacture throughout the eighteenth and nineteenth centuries. Medicinal vials, however, continued to be free-blown well into the nineteenth century (Jones and Sullivan 1985:22). Dip mold processes have also encompassed a wide and non-specific date range. It is known to have been utilized for the manufacture of wine bottles during the early eighteenth century in Europe. The use of this technique declined during the

second half of the nineteenth century in the United States (Jones and Sullivan 1985:23). Throughout the eighteenth and nineteenth centuries a variety of multi-piece hinge or leaf molds were designed. The advantage of the uniformity and the ability to add historical information via embossment accompanied these developments. Two-part, full-height, mold-blown containers generally date between ca. 1750 and ca. 1880. The mold utilized in the production of these containers formed the base, body, shoulder, and neck of a container while the finish had to be tooled by hand. Its leaves, or segments, were hinged at the bottom or side (Jones and Sullivan 1985:26). A three or four part mold which consisted of a dip segment for the fabrication of the body, two side-hinged leaves that formed the shoulder-neck portion, and base segment, was referred to as a Ricketts or Ricketts-type mold. Generally this mold type was utilized from the 1820s until the automation of the 1920s (Jones and Sullivan 1985:29-30). Molds that consisted of 2,3, or 4 vertical leaves and a separate basal portion became popular during the latter half of the nineteenth century and up to the development of machine automation. The vertical leaves of the mold were hinged along the body side. A separate basal cup or post-bottom joined the vertical leaves to form all parts of the container with the possible exception of the rim portion. Generally, multi-part, post or cup bottom molds date between ca. 1850 and ca. 1925 (Jones and Sullivan 1985:28).

Containers blown in optic molds were also found during excavations in the Lock Haven/Lockport Study Area. The process involved in optic molding first involves the blowing of the gather in a dip-type mold that exhibits a recurring pattern. "The gather fills the mould, is removed, placed in a full-sized mould of any number of pieces and design, and blown to full size. The enlarging

process transfers the part-sized design to the interior surface of the glass, leaving the full-sized mould configurations and seams, if there are any, on the exterior surface of the glass." (Jones and Sullivan 1985:32). Molded forms can generally be dated between the 1700s and present. The method was revived during the late nineteenth and early twentieth centuries (Jones and Sullivan 1985:33).

Objects that are pressed in manufacture were produced basically by a technique patented in 1825 by John P. Bakewell. The process he and others pioneered is described in the artifact category **"Pressed Glass Artifacts."**

During the end of the nineteenth century and the beginning of the twentieth century, an elevated market for glass containers helped to provide the impetus and capital necessary for automation in the glass container industry (Miller and Sullivan 1981:1). Whether semi-automated or fully automated, three steps were involved in the mechanized production of glass containers:

1. A gob of molten glass enters the ring and parison mould and is forced by air pressure, suction or a plunger to take the shape of the full-sized finish mould and that of the part-size parison mould. The role of the parison mould is to distribute the glass into the shape needed for blowing the full-sized container.
2. With the finish ring mould still attached, the parison mould is removed. In some cases, the body of the parison is allowed to elongate.
3. The full-sized or blow mould is joined to the ring mould around the parison and the bottle is blown to full size by air pressure.

(Miller and Sullivan 1981:2)

The differentiation between semi-automatic and fully automated procedures is that gobs or gathers of molten glass were mechanically supplied to the molds in an automated machine while semi-skilled laborers transferred the material from the furnace during semi-automation (Miller and Sullivan 1981:2). An important

characteristic of both semi and full automation is that the container's finish portion is manufactured first. Semi-automatic blowing machines were developed during the 1880s and successfully applied to the mass production of containers at the turn of the century. Philip Arbogast of the United Sates developed his semi-automated machine in 1881 while the Englishman, Howard Ashle patented a design in 1886. These inventions, and several other patented variants, are the prototypes of the fully automatic glass blowing machine that was invented in 1903 by Michael Owens and developed over the next twenty years (Miller and Sullivan 1981:2-3). The cost efficiency and success of Owen's automatic glass-blowing machine is evidenced in that half of the production of glass containers in the United States involved full automation by 1917 (Miller and Sullivan 1981:5). A government study by Boris Stern in 1927 noted that only one semi-automatic machine was in operation among the 25 plants studied (Miller and Sullivan 1981:7). Attempts were made to completely automate semi-automatic machines by introducing devices for transferring glass gobs from the furnace to the blowing component. Two of the more notable inventions are the Brooke's continuous stream-feeding device and the Pieler Paddle Gob Feeder. Although technically successful, these inventions did not make semi-automatic machines competitive with the Owens machine in large production runs. According to Stern's 1927 study of Productivity of Labor in the Glass Industry, semi-automatic machines produced bottles that were 23 to 52 per cent less expensive than free blown containers, while automatically blown bottles were 90 to 97 percent cheaper than free blown examples (Miller and Sullivan 1981:4).

Technology in the blowing and pressing processes of glass manufacture was not where the only developments occurred. Inventions of more efficient furnaces

with the introduction of natural gas fuel also contributed to productivity in the glass industry.

The invention of the Siemens furnace was adopted to glass industry circa 1870 (Scoville 1944:208). The principle behind the Siemens process did not involve natural gas but rather, gas produced via efficient coal burning. "The Siemens principle in 1861 embraced a regenerative furnace (which was, in fact, its distinctive feature) and a separate unit for converting solid to gaseous fuel." (Scoville 1944:208).

The Rochester Tumbler Company of Pittsburgh was the first glass manufactory which utilized natural gas fuel. Circa 1875 the company drilled its own well which produced the gas used in heating its annealing ovens. It was not until after 1880 that natural gas was used generally throughout the production process and the industry (Scoville 1944:210). The application of natural gas was a slow process. This is evidenced by the fact that by 1880, only 21 of 348 furnaces utilized natural gas in the United States. By the mid 1880s, however, comments such as that in The Crockery and Glass Journal of May 8, 1884 testify to the utility of natural gas heat and helped to popularize it in the glass industry:

> Gas is helping to boom glass manufacture in Pittsburgh and making it harder than ever for outsiders to successfully compete against her.
>
> (Innes 1976:46)

Other mechanical inventions during the later part of the nineteenth and early twentieth centuries included tank furnaces which made possible the development of continuous melting tanks. The superiority of these features over the melting of batch ingredients in crucibles allowed inventions such as the

Owens automatic machine. The Owens machine involved batch, rather than the movement of gobs to the blowing components (Miller and Sullivan 1981:4). The invention of a device known as a "lehr" were a vast improvement over conventional annealing ovens. "Lehrs were long, tunnel-like structures through which glass was slowly drawn in iron pans, hooked together in a sort of train. Since the entrance of the lehr was constantly heated and the other end was kept a shop temperature, bottles and other items could be packed as soon as they emerged from it." (Scoville 1944:211). Widespread utilization of the more time, space, and cost efficient, lehrs did not occur until after 1880 (Scoville 1944:211).

The natural color imparted to glass ranges from a pale green to aquamarine due to natural occurring iron impurities and other metallic oxides within batch ingredients. Prior to 1875, color via iron impurities were the norm in North American glass articles. Glassmakers either accepted the color presented to them or used it in combination with purposely added oxides toward desired coloration. Jones and Sullivan (1985) offer the following analytical definitions of glass colors:

> Colourless - This term is used to describe glass with no colour and is preferable to terms like 'clear,' 'white,' 'flint,' or 'crystal,' which have not been used consistently by contemporary authors or in historical documents. The production of colourless glass requires silica (sand) almost free of iron and a flux and a stabilizer without noticeable impurities. Colourless soda-lime, potash-lime, and potash-lead glasses have all been manufactured in the past, and, except for potash-lime glass, continue to be made today.
>
> Solarized - 'Sun coloured amethyst.' This type of glass is colourless when produced. Manganese, called the glassmaker's soap, was used to overcome the light green or yellow tint of iron oxide in the batch. However, the resultant glass turns a slight purplish tint after prolonged exposure to the ultraviolet rays of the sun. This type of glass was most common from the last quarter of the 19th century until World

War I, but it does occur earlier, especially in 18th century French crizzled glasses.

Blue - Cobalt is one of the strongest colourants available to glass manufacturers. The rich blue it produces was used particularly in the late-18th and 19th centuries for table glass such as salt dishes and decanters, and for medicine and cosmetic containers.

Copper green - Imparted by the presence of copper oxide, this colour is commonly used for modern wine bottles and some large-size pop bottles. It should not be confused with the more common shades of light green produced by iron.

Purple - Manganese dioxide was used more often for decolourizing glass than for imparting colour. However, when used in slightly stronger concentrations it can produce several shades of purple, including a simulated black glass. It was used for pictorial flasks and some tableware.

Opaque white - Opaque white glass (popularly known as milk glass) was used both for tableware and commercial containers. It can be produced by using tin oxide or bat guano which is high in calcium (Biser ca. 1899:105-6), but there are other opacifiers available as well (see Charleston 1954). Opaque white glass was redeveloped by the Venetians in the early-16th century (Polak 1975:58) and has continued in production since that time. In the late-19th century it became more widely used for tablewares, containers, and lighting devices.

Black glass - 'Black glass' is a term frequently used in the literature to refer to dark green glass liquor bottles of the 17th, 18th, and 19th centuries. 'Black glass' can be almost opaque and developed out of the switch from wood to coal as a fuel for glass furnaces in England. 'Black glass' has high levels of iron, manganese, carbon, and sometimes cobalt. During the pre-1820 period, bottles made of 'black glass' were the dominant type of containers used in the liquor and mineral water trades. True black glass is extremely difficult to obtain and most black objects, such as beads, are, in fact,a dense purple colour.

(Jones and Sullivan 1985:13-14)

The development of technology toward the production of flat glass items is discussed below.

Flat Glass

No. of specimens: 73
Type of specimens: aquamarine/blue window glass fragments, 36; Colorless window glass fragments, 10.

No. of represented forms: not applicable.

Types of represented forms: not applicable.

Description: All of the flat glass that was recovered from "The Green" can be characterized as fragments of window glass ranging from standard panes of pale to dark aquamarine glass to thick plate glass standards which are characteristically colorless in nature. Matrix imperfections were noted for individual fragments as were instances of surface damage. Individual references to each fragment's imperfections or damage will not be presented in this report since reconstructive analyses is not the overall intention in the consideration of the flat glass assemblage. In general, matrices imperfections are relatively rare, only being noted for a few specimens. These imperfections are either characterized by the presence of elongated seeds, elongated blisters, or circular seeds. Surface damage to the individual specimens is more common, being demonstrated by almost all specimens. The most predominate form of surface damage involves varying degrees of patination. The second most predominate type of damage includes abrasions to the surfaces, and is often found in combination with patination and/or other forms of surface damage such as clouding, fractures, and ferrous oxide corrosion. Fiscal constraints did not permit elemental examination via X-ray fluorescence analysis, nor the determination of refractive indices. Single position thicknesses were obtained for each specimen.

Measurements/ Color/ Provenience:

thickness	color	specimen	provenience
.079 inch	aqua	F001	A2 (10-20cm)
.075	aqua	F002	
.075	blue	F003	
.095	blue	F004	
.074	aqua	F005	
.098	aqua	F006	
.089	aqua	F007	
.074	aqua	F008	
.060	aqua	F009	
.095	aqua	F010	
.096	aqua	F011	
.075	aqua	F012	
.061	aqua	F013	
.097	aqua	F014	
.098	aqua	F015	
.066	aqua	F016	
.101	aqua	F017	
.075	aqua	F018	

.080	aqua	F019	
.074	aqua	F020	
.052	aqua	F021	
.075	blue	F022	
.074	aqua	F023	
.072	aqua	F024	
.063	blue	F025	A2 (20-30cm)
.096	none	F026	
.072	aqua	F027	
none taken	aqua	F028	
.067	aqua	F029	
.070	blue	F030	
.095	aqua	F031	
.061	blue	F032	
.094	blue	F033	
.114	aqua	F034	
.083	aqua	F035	A2 (0-10cm)
.111	aqua	F036	
.121	aqua	F037	
.077	aqua	F038	
.069	aqua	F039	
.083	aqua	F040	
.114	aqua	F041	
.103	aqua	F042	
.093	aqua	F043	
.080	aqua	F044	
.083	aqua	F045	
.090	aqua	F046	
.075	aqua	F047	
.089	aqua	F048	
.075	aqua	F049	
.071	blue	F050	
.103	blue	F051	
.086	none	F052	
.081	none	F053	
.076	none	F054	
.072	aqua	F055	
.101	aqua	F056	
.071	none	F057	
.082	aqua	F058	
.085	aqua	F059	
.071	none	F060	
.082	none	F061	
.058	none	F062	
.076	aqua	F063	
.095	blue	F064	
.081	none	F065	
.072	none	F066	
.060	aqua	F067	
.088	aqua	F068	
.089	aqua	F069	A2 (30-40cm)
.076	aqua	F070	

.058	aqua	F071
.079	aqua	F072
.065	aqua	F073

Comments: Technological evolution within the flat glass industry probably utilized many developments discussed for glass container manufacture in the introduction to this section, such as the incorporation of more efficient fuels, annealing processes and batch recipes. However, the basic techniques involved in manufacturing flat glass items deserve description separate from a discussion of container products.

Four basic types of flat glass have been produced in the United States. Two of these types, crown glass and cylinder glass, have been manufactured since very early in the country's history, while plate glass and mirror glass were manufactured later during the 19th century.

The crown process in flat glass production begins with the accumulation of between 10 to 14 pounds of metal (molten glass) at the end of a blowpipe. The gather was manipulated and enlarged to a pear-shaped blob. The next step required that a metal rod or "punty" be attached to the opposite end of the blob. The blowpipe was then removed, and through continuous reheating and spinning of the punty, the blob opened and expanded into a flat, circular disk known as a table. After removal of the punty and the table's subjection to annealing, the glass was cut in half or into small panes for marketing (Roenke 1978:5). This method of flat glass production originated during the fourth century A.D. in the Near East. Primarily manufactured by European enterprises and somewhat less by American businesses during the beginning of the 19th century, the crown glass technique was eventually displaced by the cylinder method in both countries. "By 1820, most American glasshouses were utilizing the cylinder method . . . " (Roenke 1978:6).

The general procedure during the cylinder production of flat glass again begins with the gathering and manipulation of molten glass on the end of a blowpipe. The gather was then blown and swung from side to side while the blob was continuously reheated. During this process, the glassblower was situated on a platform above a pit. His intent was to fashion a cylindrical carboy approximately six feet long. The bottom and top of the carboy were removed and the resulting cylinder split longitudinally. Further heat treatment and manipulation flattened the split cylinder on a bed or "lagre" of smooth glass (Roenke 1978:7). A similar process known as the "Lorraine Mode" preceded the cylinder process in Europe. It was basically the same method but involved the cutting of the cylinder with sheers and flattening on an iron plate that was surfaced with sand (Roenke 1978:7). The predecessor to the Lorraine Mode and the German sheet or cylinder process was a method described by Theophilus Rogerus in the 12th century A.D.:

> (1) pierce the end of a large elongated bulb and widen the aperture to equal the bulb's largest diameter; (2) pinch together the mouth thus formed so that the narrow space remaining can be spanned and held by a seal of glass attached to a pontee; (3) break the bulb, now supported by the pontee;

> (4) detach the cylinder from the pontee, anneal it and, when cold, split it from end to end by the application of a red-hot iron; (5) place the cylinder on the flat bed of an oven, heat it, and as the cylinder opens, owing to heat, flatten (spread) it into a sheet by means of a rod of iron or wood.
>
> (Roenke 1978:6)

The quality of the most advanced German sheet glass did not match that of flat glass produced via the crown method. However, the cylinder process was much more economical since less glass was wasted upon cutting for panes. This aspect of cylinder glass production resulted in its replacement of the crown method in the United States by the 1830s. In England, the crown technique survived into the 1850s (Roenke 1978:8).

A process for the even grinding of blown plate glass was developed circa 1838 by the Chance Brothers of England. "Patent plate" as it was called was most applicable for use in small flat glass items and possibly windows. The process of producing patent plate glass, "Involved the secure adherence of a sheet of glass of uneven surface, to the grinding and polishing bed by covering the bed with moistened leather and applying atmospheric pressure." (Roenke 1978:8)). Patent plate glass was produced in England into the 1880s.

The invention of a mechanized cylinder glass blowing machine was first accomplished by Ismael Robinet in 1824. In 1854 a French man named Loup developed a technique which drew and blew a cylinder from the molten batch via a metal ring. Additional developments in the mechanization of sheet glass industry occurred in 1886 when Martin A. Oppermann developed a technique which was similar to Loups but fully automated. These developments, however, were not competitive with the hand-blowing of cylinders. The Lubber process was an improved variant of the Oppermann design which produced better, cheaper, and larger sheets of glass (50 feet long and 30 inches in diameter). The glass did, however, become flawed during the flattening process (Roenke 1978:9). J.H. Lubber was employed as a flattener in the window glass company of James A. Chambers in Pittsburgh (Tillotson 1921:155T).

The manufacture of plate glass involved casting, a technique developed since Roman times. Molten glass was poured onto casting tables and rolled evenly by a roller which ran on metal guides. The casting tables evolved from stone to more economically feasible iron plate designs. The glass produced via the rolling was marketable as "rough plate for items that minimally required translucence. Grinding and polishing of rough plate produced "polished plate" which could be purchased at a much higher cost. Eventually, improvements in the grinding technology would bring this cost down (Roenke 1978:9-10). A description of the casting procedures in 1921 notes that the process required 25 hours to complete all of the cycles involved:

> When the glass is ready for casting, the pot is taken from the furnace and any impurities on the surface of the glass are removed. The pot is then grasped by a clamp suspended from a motor-driven travelling crane and is brought to a position over the casting table. The casting operation

> consists in tipping the pot and at the same time moving it across the table so that the glass is distributed more or less uniformly just in front of the roller. The roller, which is about 30 inches in diameter, is drawn over the glass, an operation which requires about one minute. By this time the plate is coated sufficiently to be transferred to the lehr. . . .it rests on the floor of the lehr and is pushed mechanically from one compartment to the next . . . . The plate then advances into a straight, mechanically operated rod lehr, which is some 280 feet long and in which the annealing operation is completed . . . . After passing through the lehr, the plates are placed on cutting tables and cut into the required sizes.
>
> (Tillotson 1921:157T)

The process is complete after the grinding and polishing of the cut pieces.

Production of cast plate glass in the United States did not occur until after 1850. The Lenox Glass Works of Massachusetts are known to have produced plate glass between circa 1853 and 1871. The expense of equipment, the inability to establish large scale production, and lack of an adequate market prevented the success of caste plate glass industry in the United States until circa 1878 (Roenke 1978:10). Inventions such as James Hartley's rolled plate process in 1847, a double-rolling machine by the Chance Brothers in 1870, and then succeeding sheet drawing processes of Pittsburgh's William Clark, Monsieur F. Vallin of France, Mr. Himan Frank of Detroit, Emile Forcault of Belgium, and Franklin, Pennsylvania's Irving U. Colborn, mark the evolution of the plate glass industry during the later half of the 19th century. The drawing process would eventually supplant hand blowing techniques and become the primary mode of window glass production during the twentieth century (Roenke 1978 :11). Glass produced via the Colburn process is drawn in a continuous sheet, "from a pool of molten glass in about 30 inches, the plastic sheet passes over a roller and is thereupon carried in a horizontal direction through the annealing lehr. This process is continuous and obviously requires no separate flattening operation. The sheets, which are abut 72 inches in width are drawn at a rate of from two feet to six feet per minute, depending on the thickness; each unit therefore, is capable of a yearly production of 10,000,000 square feet on the basis of single-strength glass (Tillotson 1921:156T).

Tillotson (1921:157T) comments that flat glass for photographic plates, lantern slides, etc., was imported from Belgium prior to World War I. The production of mirror glass involved flat glass produced via any of the methods described above. Procedures for giving the glass its reflective properties first involved the "tin and Mercury process." This included the layering of mercury between the polished glass surface and a sheet of tin foil. In addition to the eminent health hazards for production personnel, costs for the finished mirror was high (Roenke 1978:13).

E. Ward Tillotson writing from the Mellon Institute of Industrial Research of the University of Pittsburgh, in 1921, concluded that the advancement of the flat glass industry, from its position during the early twentieth century would

enable the reader to more competently consider the products of the developing technology.

Free or Mold Blown Container Glass

DOMESTIC FUNCTION CONTAINERS

Preserve Jar

No. of specimens: 1.

Type of specimen: shoulder-rim fragment, 1.

No. of represented forms: 1.

Type of represented form: aquamarine preserve jar or bottle, 1.

Description: A single non-crossmending, unassociated shoulder-rim fragment represents the only example of a glass preserve container among the artifacts recovered from "The Green." The specimen is pale aquamarine in color and transparent. The represented form exhibited a slightly flared, but plain rim which probably accommodated a non-extant cork stopper. Extant vertical mold lines indicate that the represented form was probably manufactured in a two-part, full-height mold, and that the process was probably not automatically accomplished. The later interpretation is also evidenced by the irregular nature of the matrix and surfaces. In horizontal profile, the represented form's body appeared circular. the neck portion of the represented form was circular in planview and cylindrical in vertical cross-section. The shoulder portion is also circular in horizontal cross-section and conical when viewed in profile. The extant vertical seam or mold lines extend to the rim. The specimen exhibits patination as its only visible form of surface damage.

Measurement: extant height: 41.92mm

Provenience:

Form	Study Area	Horizon	Depth	No. of Specimens
1	The Green	A2	0-10cm	1

Comments: Preserve jars, or Fruit jars, are unique among glass container types because of their manufacture for intentional multiple utilization, and their multiple functionality. The technological evolution of preserve jars, and more generally, the canning industry, was initiated by France's Nicolas (Francois) Appert. Appert, a chef, pickler, preserver, winemaker, brewer, confectioner, and distiller recognized and developed the processing of foods by sealing them in glass containers and boiling them. His method was published in 1810 and his efforts rewarded when he won a $4000 prize offered by the French government for the development of a method of preserving foods for the military forces. Apperts', 1810 book was originally entitled, L'Art de Conserver les Substances Animales et Vegetables. The 1920 English translation of the book is, The Art of

Preserving (Toulouse 1969:97). Appert built his first canning factory in 1806 and continued to commercially can foods until 1841. One portion of Appert's own description of his canning methods involves the following:

> 1. To enclose in the bottle or jar the substances that one wishes to preserve;
> 2. To cork these different vessels with the greatest care because success depends chiefly on the closing;
> 3. To submit those substances thus enclosed to the action of boiling water in a water-bath for more or less time according to their nature and in the manner that I shall indicate for each kind of food;
> 4. To remove the bottles from the water-bath at the time at the time prescribed.
>
> (Toulouse 1969:97)

The influence of Appert's book was significant and by 1829 advertisements by Thomas W. Dyott referred to preserve containers as "Fruit jars," from that point on the name has become synonymous with containers that have much more generic functions (Munsey 1970:145). While glass preserve containers developed, the packaging of foods in metallic cans was initiated in 1810 with Peter Durand's patented method of making tin coated cans. This type of packaging was ultimately more practical for the military, given the amount of transport involved (Toulouse 1969:98).

The development of the glass fruit jar was impeded by the inadequacies of closures. originally, Appert had stressed the need for suitable and reliable closures. ". . .for approximately the first fifty years that the fruit jar was used, the closure was merely a cork sealed with wax. As in all phases of glass container manufacturing, the development of a standardized closing device was hampered by the fact that each vessel made was unique, and therefore a cork was practically the only device flexible enough to fit all containers." (Munsey, 1970:145).

Dye Bottle

No. of specimens: 1.

Type of specimen: complete aquamarine dye bottle, 1.

No. of represented forms: 1.

Type of represented form: aquamarine dye bottle, 1.

Description: This complete and unreconstructed specimen is aquamarine in color with a transparent matrix. It demonstrates an applied, one part, patent or extract style finish which probably accommodated a non-extant cork stopper. The represented form's neck is Cylindrical in profile and circular in plan. The shoulder is domed in vertical cross-section while it demonstrates an ovoid horizontal cross-section. The body portion continues the ovoid horizontal cross-section, and appears rectangular in when cross-sected vertically. The base, in profile, appears concave and flat, having a circular impression in its center. When cross-sected horizontally the base appears ovoid. The specific type of mold is not apparent from the techno-morphological features. However, the vertical mold lines which extend to the finish, indicate it was a two-part, full-height mold. Embossed down the front of the body portion is, "GEO. H. REED & Co's/ DOMESTIC DYES". Surface damage to the represented form involves patination.

Measurements:

maximum height:	100.90mm
extant height:	100.90mm
height of seam line:	95.78mm
interior aperture diameter:	9.12mm
exterior aperture diameter:	19.94mm
basal dimensions:	49.72mm X 26.40mm

Provenience:

Form	Study Area	Horizon	Depth	No. of Specimens
1	The Green	A2	0-10cm	1

Comments: "Geo. H. Reed & Sons" has not been identified in available resources. In general, dyes were utilized throughout prehistory. "Purple, for instance, the rarest color of all, . . .was obtained from the mucous gland of a Mediterranean shellfish." (Reader's Digest 1980:131). The rarity and cost of purple dye was one of the bases of Phoenicia's wealth and its adoption as imperial color by the Romans (Reader's Digest 1980:131). The following colors were acquired from a variety of sources:

Yellow/Orange	plants including saffron, fustic, turmeric, weld, henna, and safflower.
Vibrant blue	Indigo and woad (plants)
Bright red	Dactylopius coccus (insect)

Other natural sources were used and their acquisition involved a variety of unusual historical events (Reader's Digest 1980:131-132). The production of artificial dyes began with the accidental invention by William H. Perkin. Perkin, a student at the Royal College of Chemistry in London, produced a black sludge while trying to synthesize quinine in 1856. Out of curiosity, Perkin dissolved the sludge in alcohol and found it made a brilliant purple liquid. "Perkin subsequently sent samples to Britain's leading dyeing firm, Pullers of Perth, and received this optimistic reply: 'If [the ladies] once take a mania for [your colour] and you can supply the demand, your fame and fortune are secure.'" (Readers Digest 1980:132). The color did indeed become popular via its success with personalities such as Queen Victoria and Czar Nicholas II's daughter

Alexandra (Readers Digest 1980: 132). As a point of irony in the history of dyes, Dr. Gerhard Domagk, while studying a new dye for leather in 1932 found that it was an effective microbe killer. His discovery led to the invention of sulfonamide - the first specific antibiotic drug (Reader's Digest 1980: 132)!

A bottle embossed with the same label as found on this example was recovered from the Gateway Center Pittsburgh Light Rail Transit archaeological sites in Pittsburgh, Pennsylvania. An interpreted form date range of 1860 to 1915 is associated with that form as well as the example recovered from the Lock Haven/Lockport study area. The Gateway Center form contained extant remnants of a purple liquid which probably represents its original dye contents.

The interpreted form date associated with the represented form in this category is 1887.

Toiletry Bottle

No. of specimens: 1

Type of specimens: complete colorless toiletry bottle, 1.

No. represented forms: 1.

Type of represented form: complete, colorless toiletry bottle, 1.

Description: The toiletry bottle represented by this complete and unreconstructed specimen is colorless with a transparent matrix. The finish on the specimen involves a continuous thread and a sprinkle aperture which is funnel-shaped in profile. Although it is not extant, a metallic or plastic screw-on cap was probably the closure on this form. The neck portion of the bottle appears conical with a stepped out portion near the shoulder in profile. The same portion is circular in horizontal cross section. The shoulder appears down-sloped when cross sected vertically and rectangular in plan view. The body expands form the base in profile and is rectangular in plan view. The base, which demonstrates embossment and a possible suction scar, is concave in vertical cross-section and rectangular in plan view. The embossment consists of "17" oriented lengthwise toward one end of the basal surface. The techno-morphological characteristics of the specimen indicate that the form was manufactured automatically.

Measurements:

Maximum height:	19.18 mm
Extant height:	19.18 mm
Height of seam line:	19.19 mm
Interior aperture diameter:	5.00 mm
Exterior aperture diameter:	19.32 mm
Basal dimensions:	57.00 mm x 25.08 mm

Provenience:

Study Area	Horizon	Depth	No. of Specimens

Comments: The finish and general configuration represented by the extant specimen in this category suggest the forms function as a cologne or other toiletry bottle. The production of bottles for containing perfumes or scented liquids, dates nearly as early as the invention of glass containers. Frontier America presented practical problems in terms of daily bathing practices. As a consequence, the use of scented toiletries were used to mask body odors. The represented form does not exhibit evidence of elaborate decoration of early perfume and scent bottles. It is also a more robust form than perfume bottles generally demonstrate. These characteristics imply that the represented toiletry bottle in The Green's artifact assemblages is a cologne bottle.

> It was around the turn of the century that cologne became popular. Cologne is a perfume containing a large proportion of alcohol. The odor of cologne is not as strong or lasting as regular perfume, and consequently more cologne has to be used more often to achieve the same effect as perfume. This means that cologne bottles are generally larger than perfume bottles. Because of their close relationship, perfume, scent, and cologne bottles are usually considered to be one specialty in bottle collecting, and the term 'perfume; has generally become the generic one for all three types . . .
>
> At first the glass industry had difficulty keeping pace with the demand for perfume bottles but by the early 1900s, with the development of the automatic glassblowing machine, glasshouses were more able to supply the bottle needs of manufacturers. Many bottle designs became standardized in shape, size, and colors as mass production progressed. The standardization was of great importance to the perfume industry.
>
> (Munsey, 1970:155)

Cecil Munsey goes on to note that many of the shapes incorporated into toiletry bottle designs were geometric and that generally twentieth century perfume or cologne bottles consisted of colorless, transparent glass (Munsey, 1970:155).

The interpreted form date associated with the represented form is 1950.

ALCOHOLIC BEVERAGE CONTAINER

Champagne Style Bottle

No. of specimens: 1.

Type of specimen: dark green neck fragment, 1.

No. of represented forms: 1.

Type of represented form: dark green champagne style bottle, 1.

Description: The singular neck fragment of the represented champagne style bottle indicates that this portion of the represented form appeared conical when cross-sected vertically and circular in horizontal cross-section. Remnants of the original lead foil seal, which would have once covered the closure and probable cork stopper, adhere to the extant specimen. Surface damage on the fragment entails severe abrasions to both surfaces.

Measurement: Extant height: 45.60 mm.

Provenience:

Study Area	Horizon	Depth	No. of Specimens
The Green	A2	0-10 cm	1

Comments: The large number of champagne style bottles from the National Park Service's excavations of the Steamboat Bertrand (1868-1869) not only resemble the configuration of the form represented by a single fragment in this category, but also offer more complete information concerning this popular and lasting design. Over 100 champagne bottles were recovered from the Bertrand steamboat. They were blown in molds and turned while still in a plastic state. The finishes for each bottle were produced via a lipping tool. Switzer offers this description of the closure styles that accompanied the Bertrand examples:

> Two types of stoppers and seals are associated with the champagne bottles. At least 89 bottles exhibit mushroom-shaped corks held in place with opposed metal clamps . . . . The corks are covered with a very thin, gold-colored foil wrapper which extends down the neck nearly to the shoulder. The second and larger groups of bottles (ca. 113) have mushroom-shaped corks held in place by knotless string ties . . .over the tops of which, at right angles are twisted wire bails. Thick lead foil seals or caps cover the corks and extend down a short distance onto the necks of the bottles. The foil caps for these bottles exhibit four variations of relief stamping.
>
> (Switzer 1974:23-24)

One other informative characteristic of the champagne bottles of the Bertrand is that the extant nature of the wooden cases in which they were packed. Those cases were marked in the following manners:

1. Bottles with clamped cork stoppers: "E.V.H./ PRINCE IMPERIAL."
2. Bottles with string ties and wire bails: "IMPERIAL."

3. Bottles without corks and seals: "CHAMPAGNE/VeP & Co 76/MIS____/M____."
4. At least one crate of champagne is known to have been lettered, "1 DOZ. QTS./CHAMPAGNE/J>W>B>/N.Y./CIDER/DEPOT 92 & 94 CEDAR ST." on one end, but the nature of the associated bottles is unknown.

(Switzer 1974:24-25)

Other case, cork and seal markings identified by Switzer include:

1. Thick gray-white putty-like coating over the cork extending onto the neck. Case marks: "GREEN SEAL"; consignee: "VIVIAN & SIMPSON/ VIRGINIA CITY, M.T."
2. Thick, hard, blue-stained cellulose coating over cork, extending onto the shoulder . . . . Case marks: "GREEN SEAL."
3. Thin gold-colored foil wrapper over cork, extending onto neck . . . . Cork marks: Five point star at center of end surrounded by the letters "DE____VE 8/ ____NC/____SF/ ____CIE." Stem of cork lettered "VINNO/FRANCE/IMPERIAL." Casemarks: "IMPERIAL"; "FRANCE/ ____/ IMPERIAL"; "ST. LOUIS."
4. Thick lead foil seal bearing relief stamped design and letters as in number 2, above. . . .
5. Corks are present, but the nature of the seals is unknown. Cork marks: a crown with a circle around it. . . .

A number of bottles which exhibit thick stamped foil seals also display remnants of paper labels. These were lettered in black and gold on a white background to read: "LE MARQUIS DE PONCET/ CHAMPAGNE/ MOUSSEUX/ ____AYQU/ SOL____ E____."

At least one container whcih held wine bottles in the cargo was marked "AMERICAN WINE Co./ SPARKLING/ CATAWBA/ ST> LOUIS, MO." on one end; the top of the crate was stenciled "VIVIAN & SIMPSON/ VIRGINIA CITY, M.T."

(Switzer 1974:24-28)

Significant attention has been paid to the description of the bottles from the Bertrand which are probably similar to the example represented in the Green assemblage, primarily because of the Bertrand assemblage's remarkable state of preservation. It would be unfounded to conclude that the labels described above also would be found on the represented example. However, an indication is given of the style of labelling, and more importantly, techno-morphological information such as possible closure styles.

The origin of the champagne style bottle can be traced back to eighteenth century advertisements. Along with claret bottles, references to "Champaign bottle" appeared in 1757 as a verbal distinction between other wine bottles. The

Boston advertisement stated, "full quart long neck'd Champain bottles in hampers." (McKearin and Wilson 1978:223). A French origin for champagne style bottles seems most likely. Their construction was sturdy given the effervescent nature of their contents. McKearin and Wilson indicate that champagne bottles may have been manufactured prior to 1829. However, they are only aware of an 1829 Price List of the New-England Glass-Bottle Company which advertised the bottles as $10.00 per gross for the quart size and $8.00 per gross for the pint size (McKearin and Wilson 1978:105).

The interpreted form date associated with this represented form is 1860.

MEDICINAL PRODUCT CONTAINERS

Patent, Proprietary, and Apothecary Glassware

No. of specimens: 7

Types of specimens: colorless body fragments, 3; colorless base-body fragment, 1; colorless shoulder-rim fragment, 1; complete colorless bottle, 1; and complete aquamarine bottle, 1.

No. of represented forms: 3

Type of represented form: apothecary bottle, 1; patent medicine bottle, 1; drawn bottle, 1.

Descriptions: The first represented form in this category consists of two cross-mending and three associated fragments. The partially reconstructed form exhibits a colorless and transparent matrix. The finish on this first form includes a one-part, applied prescription style lip which probably accommodated a non-extant cork stopper. The neck portion of form 1 is cylindrical in profile and circular in plan-view. The shoulder appears domed along a vertical cross-section and square with beveled corners in horizontal cross-section. The body maintains a rectangular profile and the same plan view as that of the shoulder portion. This same square with beveled corner configuration characterizes the bases horizontal cross section. The base portion appears slightly concave in profile. The regular nature of the container's techno-morphological attributes, yet hand applied finish, suggest a semi-automatic mode of manufacture for this form. The surface is damaged by patination and fractures. Embossed across the extant body portion is ". . . THOMAS & TWINING . . .(in down-turned arc) / ESTABLISH[ED] (in down-turned arc) / 1856 / (unidentified logo)."

Form no. 2 is a complete and unreconstructed patent medicine bottle of transparent, colorless glass. The form is finished with a two-part patent or extract lip with a single ball neck ring. Although none is extant, a cork stopper would be the probable closure for this form. The neck portion is cylindrical in profile with a single ring in profile. In plan view, this same portion is circular. The shoulder demonstrates a domed vertical cross-section and rectangular horizontal cross-section. The vertical and horizontal cross-section of the body portion can be described as rectangular with panelled sides.

The base appears slightly concave in profile and rectangular in plan view. The basal surface is primarily plain with the exception of a faint parison scar. The represented form may have been manufactured semi-automatically with two-part, full-height mold components. The extant surfaces are slightly patinated.

The third medicinal product bottle in this category is a complete and unreconstructed colorless, transparent drawn bottle. A continuous thread finish accommodates a black, plastic screw-on cap, with the original paper liner. The neck portion is conical in profile and circular in horizontal cross-section. The shoulder in profile is down-sloped. It's horizontal cross-section is rectangular with beveled corners. The represented form's body portion is rectangular in profile and exhibits a prima plan view. The base appears concave if cross-sected vertically and prima oval-shaped in horizontal cross section. The basal surface is embossed with "Knoxall" (in script). A ghost mould line associated with the basal seam line is also found on this surface and implies that the represented form was manufactured by an automatic bottle machine. Additional embossment includes the dram mark, "3 iii" across the upper body.

Measurement:

Form no. 1	Extant height:	115.64 mm
	Interior aperture diameter:	13.66 mm
	Exterior aperture diameter:	29.52 mm
Form no. 2	Maximum height:	123.42 mm
	Extant height:	123.42 mm
	Height of seam line:	85.92 mm
	Interior aperture diameter:	9.64 mm
	Exterior aperture diameter:	20.50 mm
	Basal dimensions:	44.10 mm x 23.10 mm

Provenience:

Form	Study Area	Horizon	Depth	No. of Specimens	
1	The Green	A2	0-10 cm	5	2
The Green	A2	0-10 cm	1		
3	The Green	A2	STP2	1	

Comments: The development and success of the patent medicine industry was primarily based on a symbiotic relationship between nostrums and the means by which they were advertised. The industry's inception can be traced to the seventeenth century in Britain. Products such as **Anderson's Pills** of the 1630s and its prodigies of the 1700s were often created during a period when Greek and Roman thought influenced contemporary ideals:

> It was appropriate that the shop of a Massachusetts apothecary should hang out a sign of Galen's head. For it was this Greek physician of the second century A.D. who had systematized the older pathology of the humors, holding that disease resulted when the four liquids in the body-blood, phlegm, choler (yellow bile), and melancholy (black bile)-

> became unbalanced. Galen's ideas although not uncontested, were the dominant force in medical thinking into the 19th century, and remedies that would restore the harmonious relationship of the humors, called galenicals, were for sale by any British or American apothecary.
>
> (Young 1961:4-5)

There was also a cosmic view during this time that "God or Nature had provided remedies for the ailments of mankind and had furnished clues to direct man in his search. " (Young 1961:6). This philosophy eased moral and legal restraints that lay man had toward promoting what they believed to be "cures."

In general, quackery, to which patent medicines were only one category, dates back to 1630 in America. Nicholas Knopp was fined or whipped by Massachusetts Bay officials for selling this cure for scurry:

> a water of no worth nor value. . .solde att a very deare rate.
>
> (Young 1961:16-17)

One of the earliest advertisements for a "cure" dates to 1692 for "Aqua anti torminales" in the Boston Almanac. The first patented treatment, "Tuscarora Rice" was advertised in an unidentified 1711 paper or periodical. "An Abstract of the Patent Granted by His Majesty King George . . . for Dr. Bateman's Pectoral Drops" appeared in a 1733 issue of the New York Weekly Journal (Holbrook 1959:31-32). Printed matter such as promotional pamphlets may have been abundant during the 18th century as well as wrappers with promotional information used for product containers (Young 1961:11). The containers themselves were often distinctive and consistently used so that they became familiar among consumers.

The use of the word "patent" to describe what were more accurately proprietary medicines, stems from the mention of royal patents for products such as Dr. Bateman's Pectoral Drops. A very small number of the American "patent" medicines were ever registered in the United States Patent Office (Holbrook 1959:32). Samuel Lee Jr. of Windham, Connecticut patented the first American medicine in 1796, Lee's "Bilious Pills" supposedly cured Biliousness, yellow fever, jaundice, dysentary, dropsy, worms, and female complaints (Young 1961:32-33). The Revolutionary War obviously curtailed the importation of English patent medicines. This prompted American interests to produce their own versions of the English products. Even more common was the refilling of familiar British bottles by American apothecaries. This trend continued after the war, but by that time proved moot since the American patent medicine industry began its own rise. "The hero of this revolution was a physician in Plainfield, Connecticut, named Elisha Perkins. the critical date was 1796, in which the government granted Perkins the first patent to be issued for a medical device under the Constitution of the United States." (Young 1961:16). A spirit of new Americanism resulted in a desired dependence from British medicinal products:

> Efforts were begun to compile an American pharmacopoeia. Benjamin Rush, signer of the Declaration of Independence and

> most distinguished physician in the new nation, argued that there were twenty times more intellect and a hundred times more knowledge in America in 1799 than there had been before the Revolution.
>
> . . .
>
> Medical democracy, indeed, was what Americans seemed to desire. They might not decide to treat themselves but they wanted no restrictions on their right to choose the method by which they would be treated . . . . Medical control statutes in almost every other state likewise fell before the pressure of botanical lobbies and public opinion.
>
> (Young 1961:21)

The market for patent or proprietary medicines increased rapidly and somewhat simultaneously with a rise in the national literacy rate (Holbrook 1959:33). Promotion of patent medicine was directed toward a public that wearied of harsh regimes prescribed by doctors and instead favored the softened promises of patent medicine vendors (Young 1961:37). A second impetus was the increased occurrence of disease on a rapidly burgeoning urban frontier. the increased occurrence of typhoid, yellow fever and cholera was contemporaneous with an expansion of newspapers between the 1830s and 1860s. The combination of these three circumstances: greater literacy, disease, and more available press was the key to the success of what is now termed "The Golden Age of Quackery." Nostrum vendors had one further aid in their endeavors although many did not recognize it. "In 1793 Congress enacted a law under the Constitutional provision permitting legislation to 'promote the Progress of Science and useful Arts' by granting patents to investors . . ." (Young 1961:40). The government's decrease of postal rates in the 1840s made the advertisement of nostrums more popular among vendors (Young 1961:41). The symbiosis of the relationship between patent medicines and the press occurred because the bulk of advertising space in journals, newspapers, pamphlets, etc. was devoted to the medicines. Although several press owners must have become aware of the quackery involved, it would have been financially upsetting to criticize or limit nostrum advertisement.

Dr. James Harvey Young offers the following explanation of the consumers role in the Golden Age of Quackery. Clearly, the existence of the three factors discussed above hinged on patterns of consumption:

> The masses of the American people, noted the critics, were fundamentally responsible for the magnitude of the patent medicine evil, for they bought the medicines. Yet they were more sinned against than sinning, ignorant victims of their own credulity. the common man could not handle evidence rationally. The vigor of an argument rather than its sense seemed to persuade him. Man's reasoning seemed to flounder particularly when the issues related to things medical, which constituted, one doctor felt, 'the most difficult, obscure, and complicated' of all branches of human learning. In such a confused field, people tended to hearken the voice of authority, whether or not it was qualified to speak. Hence nostrum testimonials were so effective. Common sense logic

> often persuaded a man of the value of a patent medicine. He was sick, he dosed himself with a nostrum, he got well- ergo, the patent remedy cured him. It was so easy to feel sure that an event which came first in time was therefore a cause. That nature healed most illnesses, sometimes in spite nostrums, was not easy to perceive. Most people adhered stubbornly to their privilege of making their own medical decisions and acting on them. 'A man's [medical] ignorance,' said Dr Holmes, sadly, 'is as much his private property, and as precious in his own eyes, as his family Bible.'
>
> (Young 1961:70)

The Lock Haven-Lockport Study area assemblage of Medicinal Product Containers reflects a small but typical range of forms that reflect the spectrum of quack and legitimate medical concerns during the late eighteenth, and early nineteenth centuries.

The first form described above is embossed with the probable operators of a nineteenth, early-twentieth century pharmaceutical or apothecary establishment in the Lock Haven-Lockport area. "Beginning in the late 1880s, the large glass-manufacturing firms had bottle molds of standard shapes into which they inserted the customer's personalized plate and then blew a supply of bottles. This was an inexpensive means of obtaining the necessary prescription bottle and almost all drugstores took advantage of it." (Munsey 1970:174). The remaining two forms in this category are of a more generic nature but configurally identifiable as medicinally related bottles. Form no. 3 is commonly referred to as a dram bottle in reference to its capacity.

The interpreted form date associated with the "Thomas & Twinning bottle" is 1877, while the dram bottle is associated with a date of 1950 and the generic example with 1892.

Any summary examination of the personalities, promotional techniques, and ingredients of eighteenth and nineteenth century nostrum's and their vendors demonstrates the dangers facing a largely, unwary public. The lack of regulation within the patent medicine industry and the unscientific nature of medical practitioners combined to increase the number of civilians who became drug addicts during the nineteenth century.

"Studies of opiate wars circa 1800 in the Midwest, reveal that women addicts outnumbered their male counterparts by at least a six to four margin. By that time, opiates had proved to be an effective pain killer for menstrual and menopausal discomfort. In addition, a woman faced much less social disapproval drinking her medicine than drinking alcohol. Quite likely, the majority of addicts were professional males and their menopausal spouses." (Pepinsky and Jesilow 1984:101-102).

By the 1890s, it is estimated that between 200,000 and 250,000 Americans were addicted to patent medicine opiates. It is noteworthy that then, as now, physicians were the most addicted population. An estimated two percent of the physicians were addicts while other professional groups (lawyers and pharmacists,

for example) had an estimated rate of .7%, compared to an estimated .2% for the general population (Pepinsky and Jesilow 1984:102).

The trend toward widespread patent medicine addictions began to reverse itself due to two primary factors: market saturation and an increased awareness by the public. The saturation of the national nostrum market with opiate products was a natural marketing phenomenon. The slow and steady increase of these products during the later 1800s until the mid-1890s accompanied any popular, marketable item. "The product is introduced; consumer knowledge grows; people who want the product have purchased it. Sales growth slows or stops completely." (Pepinsky and Jesilow 1984:102).

A general reform movement toward greater public awareness joined with market saturation at the turn of the century. Although several writers expressed their reader's outrage over the patent medicine industries' disregard for public safety, one author in particular spearheaded public awareness efforts. The end of the era of patent medicines came with information published by Samuel Hopkins Adams. Adams published a series of articles in Collier's magazine in 1905 and 1906, in which he exposed the fraudulent claims of many nostrums and their often dangerous or addictive contents (Holbrook 1959:1-28; Munsey 1970:69-75).

One example of Adam's blunt and effective means of exposing nostrum quackery concerned headache mixtures containing acetanilid. Adam's printed a box enclosing the names and addresses of 22 victims allegedly killed by acetanilid poisoning (Holbrook 1959:6).

"The only effective method of curtailing patent medicine abuses, Adams believed, was the enactment of a national law. Efforts to secure such a law from Congress were at high tide when 'The Great American Fraud' series went to press. For a quarter of a century, from time to time, food and drug bills had been before Congress, seldom reaching a vote in either House. Proprietary manufacturers had been wary but not worried through most of these years since the proposed national bills specifically excluded their medicines from control. State formula disclosure bills had been the grave threat. By 1903, however, the Proprietary Association was much concerned. In the atmosphere of Progressivism, successful passage of a national law seemed close at hand." (Holbrook 1959:32).

Musto ( ) comments that three major commercial groups influenced initial federal legislation concerning nostrum manufacturing:

> . . ., pharmacists wished to see a ban on patent medicines containing opiates because a ban on narcotics in patent medicines would give pharmacists almost a total monopoly on the distribution of opiates. Physicians also wanted a ban on opiated patent medicines because they wanted the sole right to authorize the use of opiates. The patent medicine industry opposed the ban on opiates, realizing that the removal of narcotics from their medicines would spell the demise of the industry.
>
> (Pepinsky and Jesilow 1984:104)

Samuel H. Adam's efforts had a direct impact on the signing of the Federal Pure Food and Drug Act in June of 1906 by President Roosevelt. This Act required manufacturers of patent medicines (among other ingestible products) to list the ingredients of nostrums on package labels. the effects of making the consumer aware of what he/she was ingesting dealt a severe blow to marketability of most quack medicines. The Pure Food and Drug Act was only one example of legislation which effectively ended the "Patent Medicine Era." The Harrison Act of 1914 required a nominal tax, the use of special forms when transferring opiates, and a requirement that those who dispense the drugs be registered to do so." The act only allowed small amounts of opiates in proprietary medicines - one quarter grain of heroin, for example, to each ounce. It permits the dispensing of stronger dosages only by a physician, dentist, or veterinary surgeon for 'legitimate medical purposes,' and 'prescribed in good faith.'" (Pepinsky and Jesilow 1984:105). The following year in 1915, the United States Supreme Court ruled that the possession of smuggled drugs was a crime (Pepinsky and Jesilow 1984:105). This limited the distribution of addictive drugs to physicians. Further control of legal distribution occurred in 1922 when the Supreme Court ruled that dispensing drugs to addicts for the addict's comfort didn't constitute a legitimate medical purpose.

Mineral Water Bottle

No. of specimens: 1.

Type of specimen: dark green body fragment, 1.

No. of represented forms: 1.

Type of represented form: probable mineral water bottle, 1.

Description: The singular dark green body fragment is incomplete and unreconstructed. Its matrix is transparent and dark green, very similar to the unique color of Saratoga Springs mineral water bottles. This is the only morphological characteristic on which to base this classification. The body portion of the represented form is cylindrical in profile and circular in horizontal cross-section.

Measurement: Extant height: 24.00 mm.

Provenience:

Study Area	Horizon	Depth	No. of Specimens
The Green	A2	0-10 cm	1

Comments: The mention of mineral water in the 1980s elicits notions of upper class luncheons with "Perrier" being served. Natural mineral waters originally functioned as medicinal products rather than beverages. Hippocrates, in 400 B.C., wrote a book entitled, Airs, Waters, and Places. The historian Pliny wrote about European mineral springs in A.D. 77 (Munsey 1970:101). The discovery of

mineral springs throughout history resulted in the development of fashionable resorts. The lower income population's demand for mineral waters for their medicinal properties resulted in the bottling of the waters from various resorts. An advertisement for Simpson and Simpson's Glenn Springs includes a discussion of the medicinal value of their water:

> Messrs. Simpson and Simpson are constantly receiving letters of recommendation from distinguished physicians from this State and all parts of the United states, and communications from patients testifying to cures what (sic) it has accomplished. 'When the water is drank fresh from the Spring, by one accustomed to its use, it has a bitter saline taste, 'like Epsom Salts," is the universal formula of expression - does not produce weight or distension of the stomach, even when used freely. It is diuretic, producing commonly free, full, colorless discharges; purgative in full and repeated draughts, alterative in small doses, also increases the appetite and powers of digestion.'
>
> (Jones 1972:116)

DISEASES:

> Dyspepsia, liver complaint, chronic hepatitis, jaundice, torpor of liver and general debility following upon malarial diseases, dropsy, diarrhoea, dysentery, constipation, hemorrhoids, uterine, venal and cystic diseases, hematuria, rheumatism and cata menial derangement.
>
> Messrs. Simpson do a large and rapidly increasing trade in shipping this valuable water to all parts of the South. The water is bottled and sealed at the springs and securely packed in cases of two dozen quart bottles.
>
> (Jones 1972:118)

In America, one of the earliest spas to bottle and sell their water was Jackson's Spa in Boston, Massachusetts. Jackson's began to market the water in 1767. Their practice was followed shortly with the bottling of waters from mineral springs near Ballston, New York (1800) and sales by Philadelphia's Thomas W. Dyott in 1819 (Munsey 1970:101). Dyott, with cooperation from Dr. Harmon G. Wynkoop of Albany, was supplied with Ballston and Saratoga Springs waters. Saratoga Springs mineral water was perhaps the most popular water of the nineteenth century, and is probably the product represented by the specimen described above. A list of Companies that are represented by identified mold inscriptions in various extant collections include: Saratoga A Spring Co.; Champion Spouting Spring; Congress & Empire Spring Co.,(five variants); Excelsior Spring, (two variants); Lincoln Spring; Red Spring; Star Spring, (three variants); Union Spring; Hathorn Spring (two variants); S.A.W. (Saratoga Arondack Water); Congress Spring Water (two variants); Eureka Spring; Geyser Spring (two variants); High Rock Spring (three variants); Pavilion Spring; Seltzer Spring,

(two variants), Triton Spouting Spring; Vicy Spouting Spring, (two variants) (McKearin and Wilson 1978:236). Western Pennsylvania was the location of Washington County medicinal springs, "where the waters had a fine reputation by 1788," (McKearin and Wilson 1978:234).

The industry of bottle mineral waters appears to have reached a peak during the last quarter of the nineteenth century. By 1878, the Congress and Empire Spring Company, as an example, was selling between 75,000 and 100,000 bottles of water per year. This company, and no doubt others, established foreign markets for their products (McKearin and Wilson 1978: 234). McKearin and Wilson describe a typical style of mineral water bottle that is possibly represented by the fragment in this category:

> The bottle was one of thousands produced at the Saratoga Congressville glassworks in the 1870s in a private mold having on one side a large open block 'C' within an arched formed by the inscription 'CONGRESS & EMPIRE SPRING CO./ SARATOGA N.Y.' and, on the other, 'CONGRESS WATER.' The wire crosses the cork, which is inserted flush with the lip and is 'tied' in the crevice between the bottom of the deep flat collar and lower bevel. The wire used at that period was 'manufactured expressly for the purpose from the first quality of copper, some 2,000 lbs. being used annually.'
>
> (McKearin and Wilson 1978:234)

Although the specific manufacturers of the unique green to amber colored bottles of Saratoga Springs are largely unknown, probable sources include the Kensington Glass Works, (later the Dyottville Glass Works), and South Jersey and Connecticut glasshouses. The major source of Saratoga Spring bottles was the Saratoga Mountain Glassworks and subsequently the Congressville glassworks (McKearin and Wilson 1978:235). "In 1850 about 7,200,000 bottles were made to supply the needs of the Saratoga Springs; in 1878 just the Congress and Empire Company alone used approximately one million bottles." (Munsey 1970:102).

Saratoga Springs bottles are generally associated with an interpreted form date of 1866.

Unidentified Medicinal Glass Containers

The following represented forms demonstrate configurations which are consistent with embossed or labelled specimens in various research collections that are positively associated with medicinally related functions.

No. of specimens: 13.

Type of specimens: complete, unreconstructed, colorless bottle, 1; pale aqua body fragments, 4; pale aqua base-body fragment, 1; pale aqua shoulder-rim fragment, 1; pale aqua base-shoulder fragment, 1; pale aqua body-neck fragment, 1; colorless body fragments, 2; colorless base-body fragment, 1; and colorless shoulder-rim fragment, 1.

No. of represented forms: 4.

Types of represented forms: cylindrical bottle, 1; ovoid bottles, 2; rectangular bottle, 1.

Description: The first form in this category is a complete and unreconstructed specimen which includes a colorless and transparent matrix. Its finish consists of an applied, one-part patent or extract style rim. This probably accommodated a now non-extant cork stopper. The neck involves a cylindrical vertical cross-section, while it is circular in planview. The represented form's shoulder is also circular in planview, but conical in profile. If cross-sected vertically, the body portion appears cylindrical. It is circular in horizontal cross-section. The base is concave in profile and circular in planview. The base is plain in terms of techno-morphological evidence. However, vertical seam lines which extend from the base to approximately one half the height of the form's neck indicate that a two-part, full-height mold was utilized to manufacture this container. The surface of this form is patinated.

The second and third forms are partially reconstructed bottles which share the basic configuration of a body portion which is ovoid in planview and rectangular if cross-sected vertically. This portion is specifically different for each form. The ovoid design on form no. 2 is commonly referred to as "Union oval" and demonstrates strapped, or raised flat, sides. The ovoid body portion of the third form is panelled on the front and back. The neck portions of both forms are cylindrical in shape. Their shoulders are domed in vertical cross-section and maintain the same configurations of the bodies in planview. The same horizontal cross-section description applies to the bases which also share concave profiles. Form no. 2, which is colorless and transparent, exhibits a one-part, prescription style finish. The aperture was probably closed with a non-extant cork stopper. The basal surface of this second bottle has a small

circular raised area suggestive of a valve mark. However a fully automatic mode of production for this example is precluded by the manually finished lip. The third form (pale aqua in color) is incomplete at the finish, but does show an open blowpipe pontil scar, superimposing a bottom or side hinge mold line, on the basal surface. This represented bottle was probably blown in a two piece, full-height bottom or side hinged mold. the surfaces of both form no. 2 and form no. 3 are patinated. The associated, yet not crossmending specimens which comprise the second bottle include two body , one base-body, and one shoulder-rim fragments. Form no. 3 involves crossmending base-shoulder and body-neck fragments.

The fourth bottle assigned to this category consists of four crossmending specimens (three body fragments and one base-body fragment), and two associated, non-crossmending fragments (one body and one shoulder-rim fragments). The represented form exhibits a pale blue, transparent matrix. The aperture involves an applied, one part, patent or extract style finish which probably accommodated a non-extant cork stopper. The neck portion of form no. 4 appears cylindrical in vertical cross-section and circular in planview. The profile of the shoulder portion is domed while it is rectangular in planview. The body can be described as being rectangular with four panelled sides in both its profile and planview. The base has a concave/flat vertical cross-section owed to a circular bottom plate indentation. The mold used in this form's production was apparently two-part and full-height. The surface of bottle number four in this category is severely patinated.

Measurements:

form no. 1:	maximum height:	62.60mm
	extant height:	62.60mm
	height of seam line:	50.60mm
	interior aperture diameter:	11.46mm
	exterior aperture diameter:	20.50mm
	basal diameter:	29.18mm
form no. 2:	extant height:	66.90mm
	interior aperture diameter:	9.24mm
	exterior aperture diameter:	22.94mm
	basal dimensions:	45.08 X 33.40mm
form no. 3:	extant height:	89.18mm
	basal dimensions:	45.68 X 24.22mm
form no. 4:	extant height:	131.70mm
	interior aperture diameter	9.26mm
	exterior aperture diameter	20.52mm
	basal dimensions:	41.00 X 22.18mm

Provenience:

Form	Study Area	Horizon	Depth	No. of Specimens
1	The Green	A2	0-10cm	1
2	The Green	A2	20-30cm	4

3	The Green	A3/B2	interface	2
4	The Green	A2	0-10cm	7

Comments: These forms represented in this category may generally be attributed to an interpreted form date range between 1860 and 1900.

UNIDENTIFIED/INDEFINITE FUNCTION CONTAINERS

The following represented forms have been distinguished as discrete bottles or jars although the specimens which comprise them are incomplete. They are sub-classified according to horizontal cross-section configuration of their body portions, if known.

Rectangular or Square Bottles of Unidentifiable Origins

No. of specimens: 9.

Types of specimens: colorless base-body fragments, 3; colorless body fragments, 2; pale aqua body fragments, 2; pale aqua shoulder-rim fragment, 1; and colorless body-shoulder fragment.

No. of represented forms: 6.

Types of represented forms: rectangular or square bottles with panelled sides, 3; rectangular or square bottles with beveled corners, 3.

Description: The first form represented is the most complete form in the category. It is represented by two crossmending, aquamarine and transparent body fragments and a single associated but not crossmending shoulder-rim fragment. The aperture of form no. 1 involves a one-part, applied, patent or extract style lip which probably accommodated a now, non-extant cork stopper. The presence and character of vertical seam lines on the specimens suggests that the represented bottle was manufactured in a two-part, full-height mold. The neck portion appears cylindrical in profile and circular in plan view. The shoulder if cross-sected vertical would have a domed configuration while its planview is rectangular. The body portion is rectangular in both its vertical and horizontal cross-sections. The extant specimens demonstrate an inset panel on at least one, and probably all of the sides. The surfaces of this form are severely patinated.

Form no. 2 is represented by a singular body-shoulder fragment of colorless, transparent glass. The represented shoulder portion displays a domed vertical cross-section and appears rectangular with at least one panelled side in planview. This same planview also characterizes the body portion. The vertical profile of the second bottle is rectangular.

The third bottle in this category includes a single associated, non-crossmending body fragment. The body portion of this colorless and transparent form appears rectangular in profile and rectangular or square with paneled sides. The surfaces of form no. 3 are patinated.

One associated and non-crossmending base-body fragment represents the colorless and transparent form no. 4. The extant portion of the body only demonstrates a horizontal cross-section configuration that is square with beveled corners. The basal portion, which maintains the same planview is concave and flat in profile. This shape is due to a circular bottom plate indentation on the basal surface that also demonstrates embossment. The number "3" is embossed in the center of the bottom plate indentation. Represented form no. 4 was probably manufactured via an automatic bottle machine. Its surfaces are slightly patinated.

The colorless and transparent form no. 5 is represented by associated but not crossmending base-body fragment and a body fragment. Its body portion exhibits a rectangular profile and a horizontal cross-section which is rectangular with beveled corners. The base is concave and flat in vertical cross-section and rectangular with beveled corners in planview. Like the previous form, bottle no. 5 demonstrates a circular bottom plate indentation on its basal surface. The represented form was produced by an automatic bottle machine. The surface of this form is fractured and patinated.

The last form in this category is colorless and transparent. It is represented by one base-body fragment which implies a rectangular vertical cross-section for its body portion. The horizontal cross-section of the represented form appeared rectangular or square with beveled corners. The surfaces of the extant specimen demonstrate patination.

Measurements:

form no. 1:	extant height:	89.92mm
	interior aperture diameter:	10.00mm
	exterior aperture diameter:	19.32mm
form no. 2:	extant height:	18.00mm
form no. 3:	extant height:	59.50mm
form no. 4:	extant height:	6.92mm
	basal dimensions:	43.64 X 43.64mm
form no. 5:	extant height:	53.34mm
	basal dimensions:	55.90 X 37.46mm
form no. 6:	extant height:	49.20mm

Provenience:

Form	Study Area	Horizon	Depth	No. of Specimens

1	The Green	A2	0-10cm	3
2	The Green	A2	STP 2	1
3	The Green	A2	0-10cm	1
4	The Green	A2	0-10cm	1
5	The Green	A2	0-10cm	2
6	The Green	A2	0-10cm	1

Comments: Forms nos. 1 and 3 were probably manufactured during a period between 1845 and 1913. The automatically manufactured, represented forms nos. 4 and 5, may be attributed to a period between 1911 and the date of excavation, 1987.

Cylindrical Bottles of Unidentified Origins

No. of specimens: 3.

Types of Specimens: pale blue base-body fragments, 2; pale aqua base-body fragment, 1.

No. of represented forms: 2.

Types of represented forms: cylindrical bottles, 2.

Descriptions: The first form in this category is represented by two crossmending base-body fragments of translucent pale blue glass. This translucency is deemed not to be the product of patination which affects the surfaces of the represented form. The body of the represented bottle appears cylindrical in vertical cross-section and circular in horizontal cross-section. The basal portion is flat and concave due to the bottom plate indentation on the basal surface. In planview the base appears circular.

A single pale aqua base-body fragment represents form no. 2. The matrix of the specimen is transparent. The extant body portion exhibits a cylindrical profile and circular plan view. When cross-sected vertically the base of this specimen is flat. The basal portion is also circular in planview. The basal surface is smooth with the exception of small irregular drops of glass caused by the dripping of molten matrix during the form's production. Form no. 2 was probably manufactured in a two part hinge mold. Its surfaces are patinated.

Measurements:

form no. 1:	extant height:	11.00mm
form no. 2:	extant height:	11.30mm
	basal diameter:	32.48mm

Provenience:

Form	Study Area	Horizon	Depth	No. of Specimens
1	The Green	A2	0-10cm	2
2	The Green	A2	0-10cm	1

Comments: Both of the represented forms may be attributed to a date range of 1845 - 1913 based on extant techno-morphological attributes.

Other Curved-walled Containers of Unidentifiable Origins

No. of specimens: 3.

Types of specimens: aquamarine body fragments, 2; colorless body fragment, 1.

No. of represented forms: 3.

Types of represented forms: ovoid bottle, 1; rectangular or ovoid bottle, 1; curved wall bottle, 1.

Description: As are all of the representative fragments in this category, form no. 1 is represented by a single, unreconstructed body fragment. The matrix of this specimen is pale aquamarine and transparent in nature. The body of the represented form would appear rectangular if cross-sected vertically and ovoid in planview. The extant surfaces are abraded.

The form no. 2 specimen is colorless and transparent. The represented form would have demonstrated a body portion profile that was rectangular. The incomplete nature of the extant specimen makes it possible only to describe the horizontal cross-section as ovoid or rectangular. The surface of this specimen is severely abraded and severely patinated.

The third bottle represented by a single body fragment is aquamarine in color with a transparent matrix. The configuration of the represented body portion is such that it appears rectangular in profile and curved walled in horizontal cross-section.

Measurements:

form no. 1:	extant height:	41.00mm
form no. 2:	extant height:	89.26mm
form no. 3:	extant height:	17.00mm

Provenience:

Form	Study Area	Horizon	Depth	No. of Specimens
1	The Green	A2	0-10cm	1
2	The Green	A2	10-20cm	1
3	The Green	A2	20-30cm	1

Comments: none.

Neck - Finish Fragments

No. of specimens: 5.

Types of specimens: colorless neck-finish fragments, 2; aquamarine neck-finish fragments, 2; green-blue neck-finish fragments, 1.

No. of represented forms: 5.

Types of represented forms: unidentified function containers, 5.

Descriptions: All of the neck-finish fragments in this category represent individual glass containers in the historic artifact assemblage from The Green. They also share the same horizontal cross-section of their neck portions. These cross-sections are circular in each case. With the exception of form no. 3, which has a profile that expands from the shoulder, each of the extant neck portions appears cylindrical in vertical cross-section. Form no. 1 exhibits a one-part molded prescription style lip which probably accompanied a non-extant cork stopper. Form no. 2 demonstrates a molded, one-part patent or extract style finish, while that on the third represented bottle is one part, applied, and single bead. Although it is incomplete, the finish on form no. 4 is apparently plain and slightly flared. A one-part, applied, down-tooled lip finishes represented form no. 5. Although no closures are extant for any of the represented forms in this category, the second, third, fourth, and fifth finishes described above, like form no. 1, probably accommodated cork stoppers. The vertical seam lines which extend to the finish on form no.s 1 and 5 suggest that a two-part full-height mold was used in their manufacture. The vertical seam line on the second represented form extends three quarters of the way up the neck and also suggests a two-part full-height mold. In regard to color, form no.s one and four have colorless and transparent matrices while specimens two and five are aquamarine and transparent. Form no. 3 is blue-green in color and transparent. Surface damage among the representative specimens in this category include the patination of surfaces on form no.s 1, 2, and 5. The surface of form no. 3 is abraded.

Measurements:

form no. 1:	extant height:	26.56mm
	interior aperture diameter:	9.56mm
	exterior aperture diameter:	21.32mm
form no. 2:	extant height:	45.00mm
	interior aperture diameter:	10.68mm
	exterior aperture diameter:	23.56mm
form no. 3:	extant height:	23.88mm
	interior aperture diameter:	12.30mm
	exterior aperture diameter:	17.88mm

form no. 4: extant height: 14.56mm

form no. 5: extant height: 44.98mm
interior aperture diameter: 13.88mm
exterior aperture diameter: 23.60mm

Provenience:

Form	Study Area	Horizon	Depth	No.of Specimens
1	The Green	A2	10-20cm	1
2	The Green	A2	0-10cm	1
3	The Green	A2	0-10cm	1
4	The Green	A2	0-10cm	1
5	The Green	A2	0-10cm	1

Comments: none.

Pressed Glass Artifacts

TABLEWARE

Decorative Bowl

No. of specimens: 13.

Types of specimens: crossmending, colorless, base-body fragments, 7; associated, colorless base fragments, 6.

No. of represented forms: 1.

Type of represented form: colorless, decorative pressed glass bowl, 1.

Description: The partially reconstructed yet incomplete pressed glass bowl is represented by crossmending base-body and associated base fragments with colorless matrices. The extant base portion is concave and pedestaled in vertical cross-section while it is circular in planview. The bowl or body portion of the represented form is curve-walled in profile and circular in horizontal cross-section. The surface of this represented bowl is severely patinated and the matrix is severely fractured. The incomplete nature of the specimens does not allow an interpretation or basic description of the pressed design that may have decorated the bowl.

Measurements: extant height: 25.38mm
basal diameter: 71.76mm

Provenience:

Form	Study Area	Horizon	Depth	No. of Specimens

1	The Green	A2	0-10cm	1

Comments: Objects that are pressed in manufacture were produced basically by a technique patented in 1825 by John P. Bakewell. Although it has been argued as to who originated the pressing process, Bakewell seems to have won the honor over Denning Jarves of the Sandwich glassworks (Innes 1976:41). The first pressed glass patents concerned the production of glass furniture knobs. The pressing involves the introduction of a molten gather into a single or multi-part mold. A plunger forces the gather into the interior design of the mold. When extracted, the exterior shape of the plunger is imparted to the interior surface of the glass form. The dating of pressed glass items can be determined somewhat precisely where a distinctive design or decoration is involved. Developments after Bakewell's initial patent affected tableware production and by the 1830s mass production of pressed glass items occurred in New England and the Pittsburgh area. Further advancements during the 1860s and 1870s included the incorporation of steam power. This technological evolution and the introduction of less costly non-lead glass batch recipes increased the production and availability of inexpensive pressed glass objects (Jones and Sullivan 1985:33-35). Complete automation of this industry as well as the blown container glass industry took place during the twentieth century and continues to the present.

The identification of the manufacturer of the pressed bowl or holloware form in The Green's pressed glass assemblage is prevented by the diminutive nature of the extant fragments. In general, the production of pressed glass bowls is similar to that of pressed plates. However, the process was more complicated since the more deeper bowl required additional divisions of the mold (Innes 1976:257). One noted reference to the early production of pressed bowls is a letter from Denning Jarves to Captain William Stutson, dated June 23, 1828, in which he states, "Be careful no one gets a clay impression from the new mold," followed by, "Better take the plunger away." (Innes 1976:259). This was obviously an attempt to prevent the probable pirating of design patterns.

Miscellaneous Glass Objects

BLOWN GLASS HOLLOW WARE

Bowl or Hollow Ware Vessel

No. of specimens: 5.

Types of specimens: cobalt blue bowl or body fragments, 5.

No. of represented forms: 1.

Type of represented form: cobalt blue, mold blown bowl, 1.

Description: The five associated body or bowl fragments which represent the only mold-blown bowl recovered from The Green are cobalt blue in color and transparent. The configuration of the represented bowl's body can be described as curve walled in both vertical and horizontal cross-sections. A vertical seam line which extends up the exterior surface of one of the fragments is the basis

of describing the represented form as "mold blown." The surfaces of the specimens do exhibit a slight amount of patination.

Measurements: extant height(largest fragment): 24.42mm

Provenience:

Form	Study Area	Horizon	Depth	No. of Specimens
1	The Green	A2	10-20cm	5

Comments: A nearly complete bowl of similar body configuration and color to the example represented in this category, was recovered by archaeologists in the Pittsburgh Light Rail Transit Gateway Center Archaeological Sites, in Pittsburgh, Pennsylvania. It was determined that examples such as that one were free-blown by first creating a foot or base on the original bubble (parison) from the blowpipe. The otherwise plain tableware was given more appeal with the addition of color such as blue or amethyst (Innes 1976:101)

CLOSURE

No. of specimens: 1.

Type of specimen: complete and unreconstructed colorless glass stopper, 1.

No. of represented forms: 1.

Type of represented form: pressed glass bottle stopper, 1.

Description: The single specimen in this category is a complete and unreconstructed bottle stopper composed of colorless, transparent glass. In vertical cross-section or profile the shank portion of the form is conical and the finial appears square. In plan view, the stopper demonstrates a rectangular cross-section of the finial and a circular cross-section of the shank. The finials broadest surfaces have slight indentations on them for ease of grasping with thumb and forefinger. The base of the shank demonstrates a roughened, irregular scar resultant from the stopper being broken off of the pressed tree of other stoppers. The surfaces of the specimen are severely patinated.

Measurements:

extant height:	41.10mm
shank length:	21.48mm
maximum shank diameter:	11.60mm
minimum shank diameter:	8.82mm
finial dimensions:	19.00 X 8.18mm

Provenience:

Form	Study Area	Horizon	Depth	No. of Specimens

1	The Green	A2	0-10cm	1

Comments: The development of glass stoppers was apparently preceded by the use of cork stoppers and even earlier forms of container seals. One of the first references to glass stoppers is the recommendation of Sir Kenelm Digby, circa 1665, that mead and metheglin be bottled in glass bottles and stopped in one instance, with "ground stopples of glass." (Mckearin and Wilson 1978:212). Approximately ten years later, in 1676, Worlidge elaborates on the configuration of glass stoppers in his Treatise of Cider:

> To prevent the charge of which you may with a Turn made for that purpose, grinde or fit Glass-stopples to each Bottle, so apt, that no Liquor or Spirit shall penetrate its closures; always observing to keep each Stopple to its Bottle: which is easily done, by securing it with a piece of Packthread, each Stopple having a Button on the top of it for that end. These Stopples are ground with the Powder of the Stone Smyris, solld at the Shops by the vulgar name of Emery, which with Oyl will exquisitely work the Glass to your pleasure.
>
> The only Objection against this way of Closure, is, That not giving passage for any Spirits, the Liquors are apt to force the Bottles; which in Bottles stopt with Cork rarely happens, the Cork being somewhat porous, part of the Spirits, though with difficulty, perspire.
>
> (McKearin and Wilson 1978:213)

The manufacture of non-ornate, purely functional stoppers such as the form described above, became more efficient with patents like that of Hiram Dillaway. On May 21, 1841 Dillaway of Massachusetts, patented a ten-stopper mold. "The stoppers were connected radially to a flat matrix. Years later, Daniel C. Ripley of Pittsburgh formed the matrix into a bowl so that there would be no wasted glass when the stoppers were broken off." (Innes 1976:63).

A wide array of glass stopper types including that of the form in this category, were manufactured by Whitall, Tatum and Company:

702.	Ball.	
	All sizes.	
704.	Square Head.	
	½ oz. to Quarts.	
728.	8 oz.	
732.	2 oz.	Tall Hexagon
	4 oz.	

(Whitall, Tatum, and Co. 1971:6)

Whitall, Tatum, and Company precedes its list of stopper types with the following announcement:

STOPPERED PRESCRIPTION BOTTLES

> Some of the leading Druggists are now furnishing STOPPERED BOTTLES to their customers for Prescriptions. Where a bottle stands for days or weeks on a patient's table, the stopper is a great convenience, as well as ornament. For styles of stoppers see below.
> It is desirable to tie the stopper down, or to send the bottle closed with a cork, leaving the glass-stopper tied to the neck till it reaches the patient, as stoppers can be loosened by rough carrying. The net extra cost of the stoppers on the smaller sizes is under three cents per bottle. . . .
>
> (Whitall, Tatum, and Co. 1971:6)

Further into the catalogue, the company offers illustrations and prices for mostly decorative cologne and perfume bottles which most often include glass stoppers (Whitall, Tatum, and Co. 1971:20-24).

The represented glass stopper implies an interpreted form date of 1860.

Miscellaneous Glass Specimens

The remainder of the historic period glass artifacts that were recovered during the archaeological reconnaissance at "The Green", consist of fragments which cannot be distinguished as representing separate vessel or as being related to previously identified forms. These miscellaneous, unidentified/unassociated specimens are itemized below, noting color, shape, and/or size when possible.

Specimen	Color	Form Segment	Configuration
1	none	body	indefinite
2	none	base-body	indefinite
3	none	body	indefinite
4	aqua	body	curve-walled
5	none	shoulder	indefinite
6	none	body	indefinite
7	none	body	curve-walled
8	aqua	body	cylindrical
9	aqua	shoulder	square or rectang.

Provenience:

Specimen	Study Area	Horizon	Depth
1	The Green	A2	0-10cm
2	The Green	A2	0-10cm

3	The Green	A2	0-10cm
4	The Green	A2	0-10cm
5	The Green	A2	0-10cm
6	The Green	A2	0-10cm
7	The Green	A2	STP 4
8	The Green	A2	STP 3
9	The Green	A2	30-40cm

Comments: none.

HISTORIC PERIOD CERAMIC ARTIFACTS

Twenty-four Historic Period ceramic specimens in this assemblage are composed of soft white paste. This was determined by a "presence/absence" test that involved touching the tip of the tongue to an unglazed surface of a shard. Soft white paste shards are less highly fired than their hard white paste counterparts and are consequently more porous. The increased porosity causes the analyst's tongue to adhere slightly to the soft white pate shard.

These represented forms exhibit extant molded or painted decoration. An "undecorated" shard does not, of course, imply that the complete specimen from which the shard came was not decorated on some other part of its interior and/or exterior surface.

Decorative techniques were assessed first on the basis of their technique of execution (e.g., molding, slipping, painting, transfer printing or combinations thereof). Each decorated shard also was examined for the placement of decoration (e.g. interior and exterior surface transfer printing, overglaze painting, underglaze painting). Color schemes used in decorating the shards were tabulated by technique of execution. Similarly, differential glaze placement on a shard (e.g., interior and exterior, interior or exterior surface alone, interior and

exterior except base, etc.) was recorded for each ceramic specimen where appropriate.

Each Historic Period ceramic specimen was assessed for its probable position on the parent ceramic form. Body shards, bases, footring-base-body shards, etc. were distinguished and were tabulated by whether the shard appeared to originate from a specimen of holloware (e.g., cups, bowls, jugs, crocks) or flatware (e.g., plate or saucer) (Carlisle and Hochrein 1983:73). Extant height measurements of represented forms were only attempted when sufficient basal surface was present to determine that surfaces original parallel orientation to surface, from which a height measurement would be accurate.

Whiteware (Soft White Paste) Forms

FLATWARE

No. of specimens:	11.
Types of specimens:	body fragments, 3; body-rim fragments, 4; base-body-footring fragments, 2; rim fragment, 1; base-body fragment, 1.
No. of represented forms:	7.
Types of represented forms:	indefinite undecorated flatware, 1; undecorated plates, 5; decorated plate, 1.

Descriptions: The first flatware form in this category is an indefinite flatware form comprised of four associated but not cross-mending fragments. The specimens, in turn, include three body fragments and a single rim-body fragment. The obverse and reverse surfaces of the represented forms are glazed. The paste is characteristically white in color and porous in consistency. Surface damage to the undecorated specimens involves crazing of the glaze.

Flatware form no. 2 is represented by an associated base-footring-body fragment. The represented form involves an

undecorated whiteware plate. The paste of the specimens is characteristically porous and the glaze is moderately crazed. Both the obverse and reverse surfaces of the represented forms are glazed.

Form no. 3 consists of a single rim fragment from a very heavy whiteware form such as a plate. The extant portion of the represented form is undecorated. The paste is characteristically white and porous. The glaze is moderately crazed on both surfaces of the specimen.

The fourth represented form is represented in the Green's historic period artifact assemblage by a single rim-body fragment of an undecorated, heavy whiteware plate. The represented form appears ovoid or circular in plan. The paste of the extant specimen is characteristically white and porous. The rim, profile, appears slightly flared from the body.

A single rim body fragment also represents form no. 5. The extant specimen demonstrates decoration. The decoration on the plate, which exhibits an ovoid or circular planview, includes a blue transfer print of an unidentified floral pattern applied in an underglaze fashion. An undulating rim is also considered decoration on the represented form as is a molded decorative "curl" which extends down from the rim on the obverse surface. The paste of represented form no. 5 is porous and white. The obverse and reverse surfaces of the specimen are glazed.

The sixth form in this category is represented by an associated but not cross-mending base-body fragment and an associated rim-body fragment. The vessel they represent is a whiteware, flatware form which appears circular, with a slightly undulating rim, when viewed in planview. The paste is characteristically porous and white, while the obverse and reverse surfaces are glazed, which is crazed. There is evidence that an unidentified floral design is painted in gold paint on the obverse surface near the rim. The application of the gilded design is over glaze. There is also a very faint flor de lis design embossed on obverse surface, extending from the rim.

Form no. 7, is represented by a single footring-base-body fragment of a flatware plate. The extant portion does not show signs of decoration. However, a maker's mark has been applied to the center of the basal surface. The mark includes, "RADISSON/ W.S. GEORGE/ PP10." The paste of the extant specimen is porous, or "soft", and white in color. The obverse and reverse surfaces are glazed which is mildly crazed.

Measurements: form no. 1: extant height: 12.00mm

form no. 2: extant height: 13.50mm

form no. 6: extant height: 11.00mm

form no. 7: extant height: 9.00mm

Provenience:

Form	Study Area	Horizon	Depth	No. of Specimens
1	The Green	A2	20-30cm	4
2	The Green	A2	0-10cm	1
3	The Green	A2	Midden	1
4	The Green	A2	STP 1	1
5	The Green	A2	STP 5	1
6	The Green	A2	STP 2	2
7	The Green	A2	Midden	1

Comments: In the refinement of ceramics throughout the 19th century, the development ca. 1820 and thereafter of a clear glaze and a white paste ranks as an important accomplishment and an equally important goal of potters. In fact, this desired movement toward a purer white can be interpreted as an underlying motif in cream-colored ware to pearlware to whiteware continuum. As a general chronological index, soft paste whitewares may antedate hard white paste varieties (Carlisle and Hochrein 1983:75).

"Transfer printing is a process by which a design from a copper template is transferred to bisque pottery by using a thin, inked waxy paper which bears the desired design. Although blue transfer prints were by far the most popular, a great number of other colors, . . . were common on the tables of American homes and could be found on plates, cups, platters and other ceramic forms." (Hochrein and Carlisle 1983:76).

HOLLOWARE

No. of specimens: 9.

Types of specimens: foot-base-body fragments, 2; rim-body fragments, 6; body fragment,1;

No. of represented forms: 5.

Types of represented forms: decorated bowls, 3; undecorated indefinite function vessels, 2.

Descriptions: A single foot-base-body fragment comprises the first represented form in this category. The extant portion of the represented whiteware bowl is decorated. The interior surface is decorated underglaze with an unidentified transfer

pattern consisting of a green landscape (wooded) design on the interior base of the bowl. The interior sides of the body or bowl portion exhibit an unidentified red transfer pattern of a variant diamond pattern. The paste of the extant specimens is characteristically porus while the exterior and interior surfaces are glazed. The glaze is severely crazed.

Form no. 2 of the holloware whiteware forms is comprised of a singular rim-body fragment of an undecorated small bowl or mug. In profile, the body of the represented form is bowl-shaped or deeply concave with a slightly flared rim. The paste is porous and the exterior and interior surfaces are glazed. The glaze is severely crazed.

Form no. 3 is represented by four crossmending rim-body fragments and an associated, yet not cross-mending body fragment. The paste of the representative specimens is characteristically porous and white while the glaze on both the interior and exterior surfaces is severely crazed and stained. An indented band parallels the extant rim approximately ½ inch below the rim. The represented holloware form may have been a lightweight storage crock or canister. However, it would be more appropriate to refer to the representative vessel's function as indefinite.

A single, unreconstructed foot-base-body fragment of whiteware constitutes the extant remnant of a decorated bowl (form no. 4). The decoration includes a series of horizontal bands paralleling the rim and foot in the following order from bottom to uppermost, extant band: thin dark brown/ thin dark brown/ thick pale blue/ thin dark brown/ thicker pale green. The bowl portion of the represented vessel is bulbous in profile and circular in planview. Its paste is characteristically porous and white.

The final form represented in this category is a decorated whiteware bowl of which only a single rim-body fragment was recovered from the Green. The extant design includes a molded "curl" on the interior surface extending from the rim. The paste is characteristically porous and white with the glaze moderately crazed. The diminutive nature of the extant specimen precludes attempts to accurately suggest the represented bowls configuration or size.

Measurements:	form no. 1:	extant height:	14.34mm
	form no. 2:	extant height:	73.78mm
	form no. 3:	extant height:	64.82mm
	form no. 4:	extant height:	88.00mm

Provenience:

Form	Study Area	Horizon	Depth	No. of Specimens
1	The Green	B2(backhoe)	0-10cm	1
2	The Green	B2(backhoe)	0-10cm	1
3	The Green	A2	10-20cm	5
4	The Green	A2	midden	1
5	The Green	A2	midden	1

Comments: (see flatware)

INDEFINITE FUNCTION FORMS/UNASSOCIATED SPECIMENS

No. of specimens: 4.

Types of specimens: spall, 1; rim fragment, 1; body fragments, 2.

No. of represented forms: 2.

Types of represented forms: indefinite function vessel, 1; not applicable, 1.

Descriptions: The first specimen assigned to this category is an unidentified and unassociated whiteware spall which shows no signs of decoration on either surface. The paste is characteristically porous and white. The represented form may have been a flatware vessel, although such an interpretation is tentative at best.

The second specimen does represent a distinct whiteware form. The representative specimen is a single, rim fragment of an unidentified decorated vessel. The interior, or obverse, surface is spackled with blue-green, and red sponge-applied in the order of blue, then green, then red underglaze. The paste is characteristically white and porous.

The last two specimens assigned to this category are indefinite function and unassociated body fragments composed of soft white paste

Measurements: none taken.

Provenience:

Form/Specimen	Study Area	Horizon	Depth	No.of Specimens
1	The Green	A2	0-10cm	1
2	The Green	A2	midden	1

Comments: none.

Stoneware Forms

HOLLOWARE VESSELS

No. of specimens: 5.

Types of specimens: body fragments, 3; rim-body fragments, 2.

No. of represented forms: 2.

Types of represented forms: indefinite function form, 1; narrow mouthed crock, 1.

Descriptions: Form no. 1 is represented by a single stoneware body fragment. Although the exact function of the represented holloware form is indefinite, the uniformity of the interior surface suggests that it was manufactured automatically. The exterior surface is tan in color and glazed. There is evidence of burnishing on the glazed exterior while the interior surface is pink-brown in color and unglazed with horizontal ribs created during manufacture. The paste is gray to off-white and moderately porous. The body portion of the represented container appears cylindrical in vertical cross-section and circular in horizontal cross-section. A tentative "guesstimation" of the represented form's function would be as a bulk ink or other liquid container.

The second stoneware form is comprised of three crossmending fragments representing the body an rim portions of a large stoneware crock or jar, as well as an associated rim-body fragment. The represented form's body is cylindrical in vertical cross-section and circular in planview. It includes a domed shoulder which connects directly to a bead type finish. The paste of the extant specimens is tan-gray in color. Both the exterior and interior surfaces are glazed. The color of the interior surface is red-brown while the exterior surface appears gray with yellow-tan spots. A single incised band encircles the body just below the shoulder and horizontal with the rim. Damage to the surface of the extant portion involves ferrous oxide corrosion.

Measurements: form no. 1: extant height: 71.74mm

form no. 2: extant height: 160.00mm

Provenience:

Form	Study Area	Horizon	Depth	No. of Specimens
1	The Green	A2	20-30cm	1
2	The Green	A2	0-10cm	4

Comments: As a ceramic category, stoneware has a considerable antiquity. German Frechen stoneware jugs with their characteristic molded face, for instance, were made well before the end of the 17th century (Deetz 1977:35). The domestic stoneware industry of the United States is principally a phenomenon of the 19th century, however. Its development had many roots, not the least of which was the growing realization by the end of the 18th century of the dangers of lead glazing which had been used on earthenware ceramics for centuries (Stradling and Stradling 1977:8). A large number of stoneware potteries developed in the American Northeast and South as well as in the Mid-Atlantic and Midwest throughout the 19th century. These ranged from family-based "cottage industry" potteries that produced for local consumption to reasonably large potteries that turned out wares for national distribution.

A morphological change in American made stoneware forms took place ca. 1860. This was characterized by a shift toward utilitarian shapes. Thick, straight-walled crocks and jugs evolved from earlier bulbous forms. By the late 1860s and into the 1880s the successful development and perfection of glass preserve jars and the process of retarding food spoilage by refrigeration seriously affected the stoneware market which disintegrated to turning out mass-produced, undecorated forms. By 1910, the industry was essentially at an end (Webster 1971:20-23). Ketchum (1971) describes the structural characteristic of stoneware in the following manner:

> "Stoneware clay is a more or less white fine-grained earth which "reaches maturity," i.e., is properly hardened, at around 2200° F., a much higher temperature than employed in redware ovens. The crockery produced at this temperature is markedly different from redware. It is much harder, steel hard, in fact, and it is not porous, except where too much common brick clay has been mixed into the batch as an economy measure. (Ketchum 1971:50)."

The most common method of glazing stoneware involved common table salt. Forms such as the one represented in the historic period artifact assemblage from site 36WM589 would have been covered with a clear, thin, pitted glaze. When heated, table salt was thrown into the kiln (Ketchum 1971:50). Other surfacing techniques include slipping, as was done on the interior surface of the represented form, or the application of alkaline glazes (Ketchum 1971:50-51).

The uniformity in this specimen's thickness, shape, and texture implies that the represented form was a mass-marketed

product and is therefore attributable to a time period between 1860 and 1910. However, it should be remembered that a large number of stoneware potteries developed in the American Northeast and South as well as in the Mid-Atlantic and Midwest throughout the 19th century. They ranged from family-based "cottage industry" potteries to reasonably large potteries oriented towards a national market. The field work, museum research, and documentary study necessary to link distinctive ceramic forms, markings and designs to particular stoneware patterns are only beginning. The work of Georgeanna Greer and Sam Smith are doing much to rectify this problem, but at this time it is rare that random stoneware fragments can be identified to a source or a precise time period (Carlisle & Hochrein 1983:359-360).

In reference to those fragments of clay bottles encountered within the test probes,

> Pottery ink containers came mostly from France and England. There are two reasons for this: Both of these countries have long been famous for the production of high-quality ink, and they are also famous for their excellent deposits of clay and resulting clay bottles.
>
> One of the main features of pottery ink bottles from England and France is their non-absorbance caused by high firing which makes the bottles like stone. Depending on the techniques used, these stoneware bottles have glazes ranging from dull to very shiny. The surface texture, too, varies from smooth to granular, the latter being the result of salt glazing.
>
> English ink containers made by J. Bourne & Son for the Arnold Ink Company came in shades of brown, while those produced by Bourne for the Prang and Carter ink companies are cream-colored or white.
>
> (Munsey 1970:135)

Redware Forms

MISCELLANEOUS/INDEFINITE FUNCTION FORMS

No. of Specimens: 3.

Types of specimens: lid fragment, 1; body fragment, 2.

No. of represented forms: 3.

Types of represented forms: indefinite holloware vessel with closure, 1; unidentified redware form, 1; utilitarian redware form, 1.

Descriptions: Form no. 1 among the redware forms represented among artifacts recovered from "The Green" consists of a single associated, non-crossmending body fragment of an unidentified function vessel. The exterior surface of the extant specimen is not glazed and shares the characteristically red color of the porous or soft paste. The interior surface, however, is glazed and exhibits a dark red-brown color.

The second form in this category is represented by a single fragment of a ceramic closure, or lid, to a redware holloware form. In profile, the closure consists of a primarily cylindrical stem and down-sloped top. In planview, this portion of the represented form appears circular. The interior and exterior surfaces of the specimen are glazed and dark brown in color. The paste is characteristically red and porous.

The third represented form composed of redware ceramic is probably a utilitarian form such as a flower pot. It is represented in this assemblage by a single body fragment. The extant specimen is unglazed with the paste and surfaces consistently red in color. The configuration of the body of the represented form can be described as "curve-walled" on the basis of the extant specimen.

Measurements: form no. 1: extant height: 20.00mm

form no. 2: extant height: 28.00mm

Provenience:

Form	Study Area	Horizon	Depth	No. of Specimens
1	The Green	A2	20-30cm	1
2	The Green	A2	STP 3	1
3	The Green	A2	STP 3	1

Comments: Red earthenwares, or "redwares," were a principal utilitarian ceramic form of North American households from a very early time. Examples from the 17th century were imported from England and usually originated in southeast England or in Devonshire and Somerset (Noel Hume 1974:102). Examples of the distinctive sgraffito earthenwares, primarily produced in the Barnstaple - Bideford section of North Devon, and excavated at Jamestown, Virginia, ca. 1670-1690, are illustrated by Noel Hume (1974:105, Figure 28). As their name implies, red earthenwares

were not highly fired, and the shard paste retains a coarse, usually thick and rather crude appearance as befits the purpose of these forms. Earthenwares were extensively produced by American potters until ca. 1860 or later. Considering the small size and incomplete nature of the examples in this category, it is impossible to suggest a firm date range for their production.

The red earthenware industry in Pennsylvania became established as early as 1780 in counties such as York and Cumberland. The industry prospered until the 1870s when it was realized that the lead glazes on certain objects posed a health hazard to individuals utilizing the vessels. By the 1880s, few people were purchasing redware outside of unglazed examples such as flower pots and tiles. The mass production of lighter, more practical glass and tin wares during the early twentieth century marked the extinction of the traditional redware industry in central Pennsylvania (Lasanky 1979:3,7).

Unfortunately, the diminutive nature and non-distinctive characteristics of the single specimen of red earthenware in this assemblage make it impossible to suggest a firm date or location of manufacture for it.

BONE ARTIFACTS

A total of 12 artifacts were recovered from "The Green" which can be classified as being composed of bone. Only one specimen or 8% of the total bone assemblage have been modified to be used in utilitarian function. The remainder of the specimens are grouped as "food bone" since the only modification, if any, involves butchering marks. There has been no attempt to assign the extant specimens to species or anatomical segment. The following information represents and itemization of the recovered faunal material with the exception of the single worked bone example.

Worked Bone

TOOTHBRUSH HANDLE

No. of specimens: 1.

Type of specimen: worked bone handle fragment, 1.

No. of represented forms: 1.

Type of represented form: bone toothbrush handle, 1.

Description: The specimen is a single handle fragment of a worked bone toothbrush. The extant portion of the handle is severely warped. The represented form is incomplete at the head or brush end of the toothbrush.

Measurement: extant length of handle: 118.00mm

Provenience:

Form	Study Area	Horizon	Depth	No. of Specimens
1	The Green	A2	0-10cm	1

Comments: Celeste Feather (1986) has investigated the historical and sociological aspects of toothbrush usage and manufacture. The following excerpts are derived from here unpublished manuscript entitled, "Toothbrushes of Nineteenth - Century Alexandria: Their Owners, Manufacturers, Distributors, and Professional Advocates:"

> "The standard components of toothbrushes, bristles and handles, both had interesting origins during the early nineteenth century. The crafting of the bone handles was an involved process. The upper leg bones of oxen and cattle provided the best material with which to work. Only four blanks could be cut from each leg bone (Hovet 1892:328). All bone-handled brushes were drawn, or filled with bristles, by hand. Bone was impractical for machine drawing because it varied in hardness and resiliency and therefore broke easily. The bone blank was shaped, the holes were drilled in the head for the tufts, and then slots were engraved in the back of the head to provide a groove for the bristle binding material, wire or thread, to rest. Machines were gradually involved in the shaping and drilling processes as they became available, but were never used for drawing bone-handled brushes (Andres 1937:19)
>
> As the century progressed, more and more toothbrushes were manufactured with the backs of the

heads enclosed, without grooves. These toothbrushes were still drawn by hand, but only with linen thread. Tiny bone plugs in the tip of the head corresponded to each bristle row, and served to cover the holes through which the thread was pulled (Wandel 1932:500). Along with the enclosed backs of the heads came a noticeable increase in the regularity of bristle hole size and spacing. This standardization implies an increasing use of machinery in the manufacturing process (Leone and Shackel 1986).

The bristles used during the nineteenth century have a fascinating story behind them. They were imported to England from Siberia and northern China. The highest quality of natural bristles varied in color from black, gray, yellow, and white, to almost transparent. The average length was five inches. American and other domesticated hogs did not supply superior bristles. Thinner pigs have longer and stiffer bristles, especially those which survive in the wild in a cold climate (Literary Digest 1926:22). In 1924, almost all available types of toothbrushes in America still had natural hog bristles. The rest of the types had rubber bristles (Kaufmann 1924:302), but those did not last long. Synthetic bristles in the form of celluloid were the first serious competitors with natural ones during the next decade (Business Week 1940:30).

Both wire and thread were used to bind bristles into toothbrushes with grooved heads during the nineteenth century. The grooves were filled with colored wax after the bristles were in place in order to keep moisture away from the binding material. The bristle bundles were tied with the wire or thread, placed into the drilled holes, and then bound into the head (Andres 1937:19). Since bristles are increasingly stiffer from the outermost end to the root end, a mixture of lengths from different segments of the bristle was used in each tuft in order to achieve the maximum cleansing effect (Literary Digest 1926:22)." (Feather 1986:3-5).

Food bone

No. of specimens: 11.

Itemization:

Specimen	Study Area	Horizon	Depth
1	The Green	B2	0-10cm

2	The Green	A2	10-20cm
3	The Green	A2	0-10cm
4	The Green	A2	0-10cm
5	The Green	A2	0-10cm
6	The Green	A2	0-10cm
7	The Green	A2	STP 1
8	The Green	A2	STP 4
9	The Green	A2	STP 4
10	The Green	A2	STP 4
11	The Green	A2	30-40cm

Comments: none.

SHELL ARTIFACTS

All of the artifacts recovered from "The Green" that are composed of shell are unworked. Each specimen has been itemized and assigned to a species, in only the broadest of terms. Each specimen represents one half, or one valve of a represented shellfish.

No. of specimens: 19.

Itemization:

Specimen	Study Area	Horizon	Depth	Type
1	The Green	A2	10-20cm	oyster
2	The Green	A2	20-30cm	oyster
3	The Green	A2	0-10cm	oyster
4	The Green	A2	0-10cm	oyster
5	The Green	A2	0-10cm	oyster
6	The Green	A2	0-10cm	oyster
7	The Green	A2	0-10cm	oyster
8	The Green	A2	0-10cm	oyster
9	The Green	A2	0-10cm	oyster
10	The Green	A2	0-10cm	oyster
11	The Green	A2	0-10cm	oyster
12	The Green	A2	0-10cm	oyster
13	The Green	A2	midden	oyster
14	The Green	A2	midden	oyster
15	The Green	A2	midden	oyster
16	The Green	A2	midden	oyster
17	The Green	A2	midden	oyster
18	The Green	A2	midden	oyster
19	The Green	A2	30-40cm	oyster

Comments: none.

MISCELLANEOUS ARCHITECTURAL MATERIALS

Artifacts grouped into this category are represented by those materials, other than architectural glass, ceramic, and wood, which are commonly used in building construction. The most common material applicable to this category in most historic period archaeological sites, includes brick and mortar.

Mortar

No. of specimens: 1.

Type of specimen: architectural mortar fragment, 1.

Description: The represented specimen is apparently a fragment of mortar which is most likely composed of a clay mixture. The regular, cylindrical inner surface of the extant specimen suggests that it represents mortar that was chinked around a cylindrical form such as a pipe.

Provenience:

Specimen	Study Area	Horizon	Depth
1	The Green	A2	0-10cm

Comments: none.

ASSOCIATED DATE RANGES

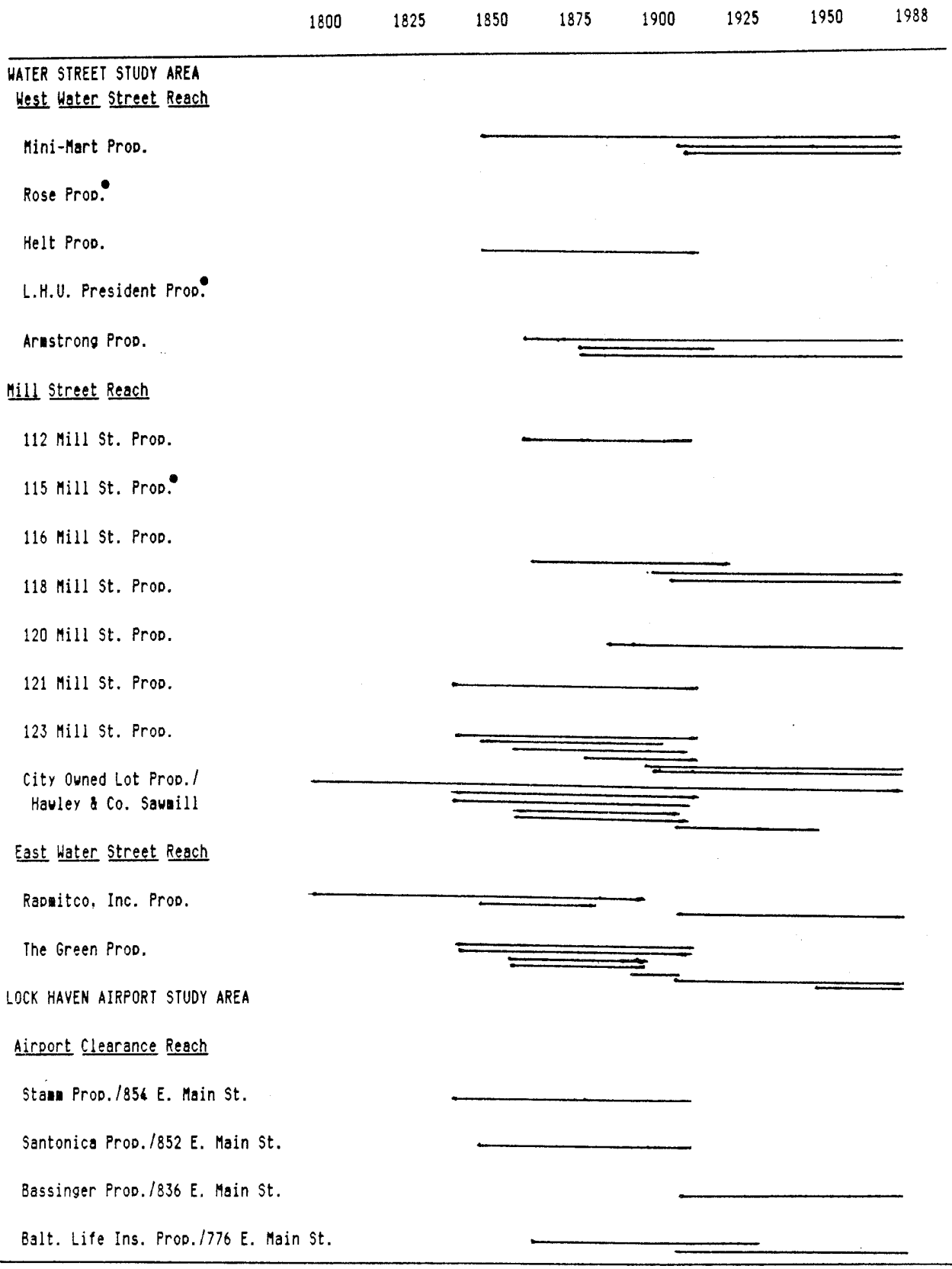
The following list has been compiled as a reflection of the range of dates associated with by individual, represented forms in each site. Most of the dates are derived by the calculation of interpreted form dates as described in the ANALYTICAL METHODOLOGY section of this report (p. 3). The use of the interpreted form date has only been used on those artifacts comprised of glass. The addition of dates derived from temporally diagnostic ceramic or synthetic specimens may be included within a stated range of dates but, their derivation does not include the combination of functional, historical, and techno-morphological attribute dates that are required for the calculation of the interpreted form date. The use of date ranges derived via this method are valid given the "throw-away" characteristic of most glass forms. Unlike ceramic artifacts which typically retain their functionality for a long period of time, and/or are curated, glass artifacts, with the exception of items such as pressed glass and preserve jars, are usually discarded once the contents are exhausted. As mentioned, the date ranges in the following list are primarily derived from glass artifacts, the largest material component represented among artifacts recovered in the study area. The use of other material artifact categories, toward the derivation of date ranges, is indicated in the "Comments" section of the following list. The reader will be frequently referred to prior sections of the report which contain comments applicable to particular forms, in order to avoid redundancy throughout the report.

The notation, "No temporally diagnostic artifacts are present on which to base the accurate calculation of interpreted form dates." does not necessarily

mean that the specific study area was devoid of historic period artifacts. Rather, those study areas do not include artifacts demonstrating techno-morphological or historical information of a nature sufficient to accurately determine dates relative to the manufacture of a represented product or form. The artifact descriptions provided below are not as detailed as those provided for the analyses of specimens recovered at "The Green." However, all of the specimens under went the same analytical process described in ANALYTICAL METHODOLOGY, and the individual analysis forms for each represented form in the Lock Haven-Lockport Study Area Historic Period Artifact Assemblage are available upon request.

The reader is cautioned that this list, in the absence of other archaeological, geological, and anthropological data, is in no way adequate to definitively assign dates of occupation or utilization to specific sites. It is the most accurate compilation of dates relating to specific artifactual forms associated with particular sites. However, in every instance represented below, the assemblage of temporally diagnostic artifacts for each study area locale is too diminutive to provide a general indication of site chronology. This list of interpreted form dates and ranges should be considered with respect to all of the information relative to each site and presented in other facets of this report.

Figure 2. Associated Temporal Ranges for Diagnostic Historic/Recent Period Artifacts by Study Area, Reach, and Individual Properties.



A solid lines represents the possible temporal range of an individual temporally diagnostic historic/recent period artifact recovered during Phase I Inventory Investigations.

● = Properties with a dot beside them contained no temporally diagnostic historic/recent period artifacts.

Figure 2. (cont.)

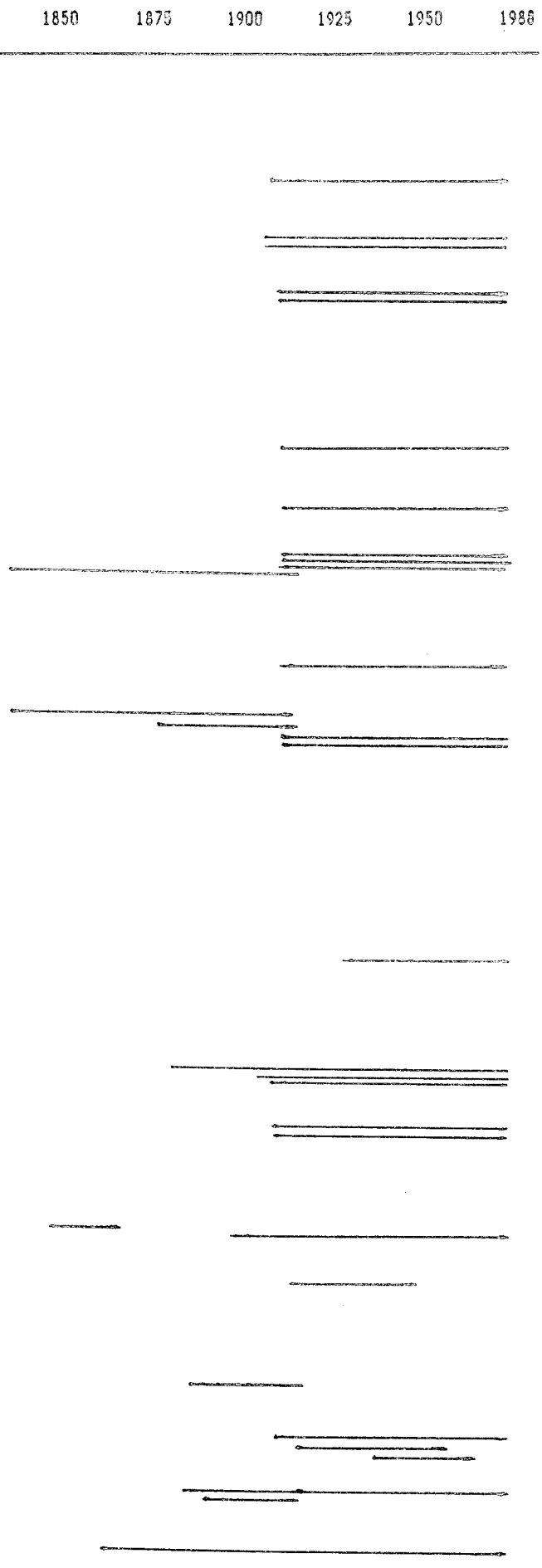
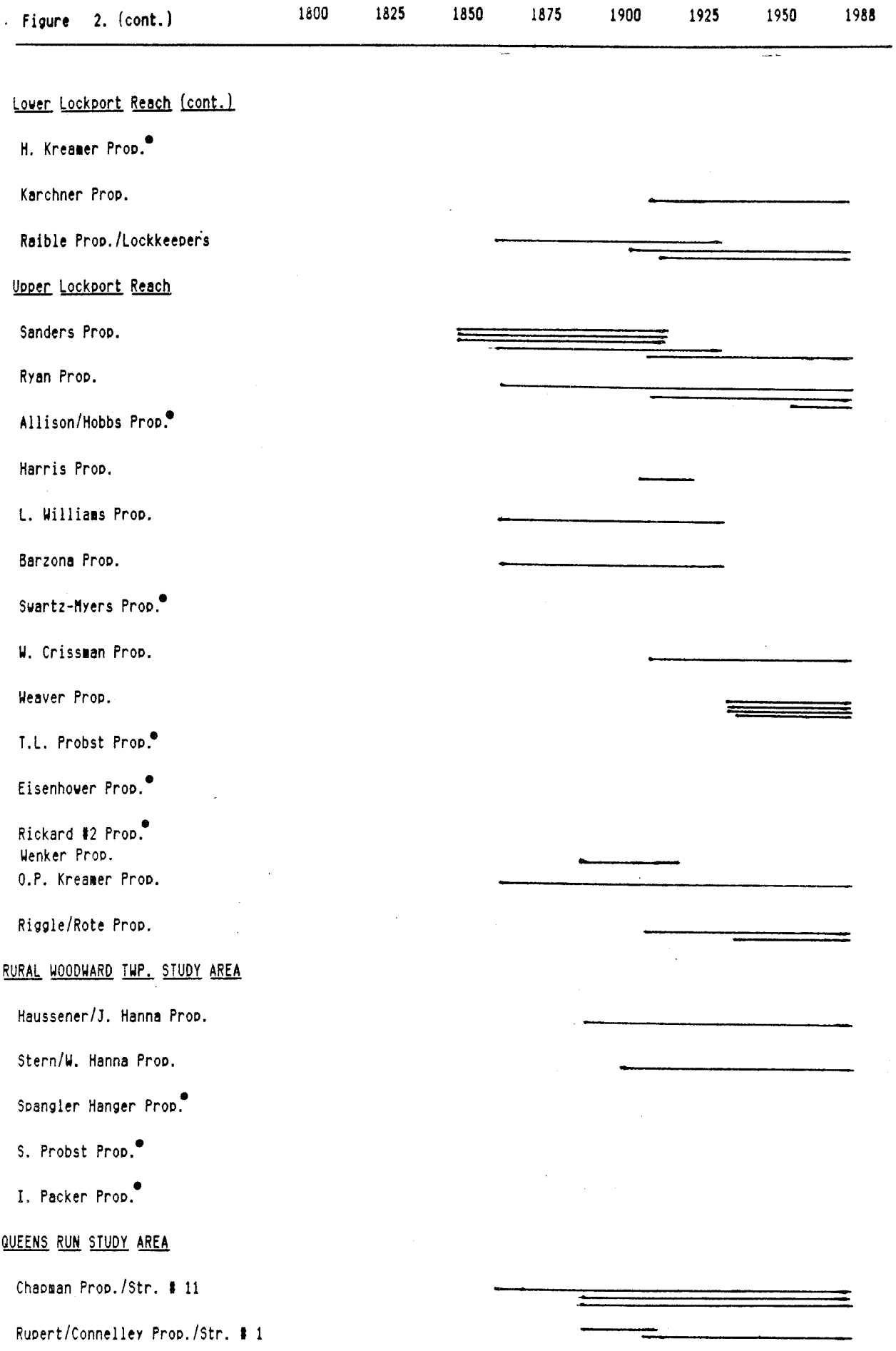
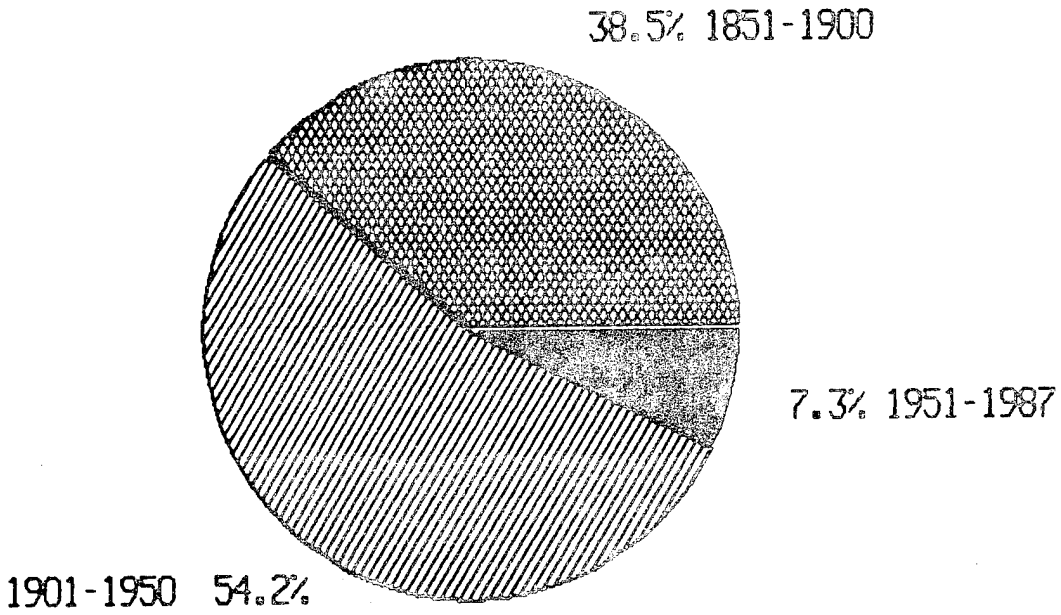


Figure 2. (cont.)



Frequencies of temporally diagnostic forms within median interpreted and standard date ranges



Mini-Mart Property

Date ranges: 1911 - 1987.
1850 - 1987.
1909 - 1987.

Comments: Shovel test probe no. 2 of this study location has yielded a single body fragment of an automatically blown bottle of indefinite function. The extant specimen is colorless and transparent. Its configuration suggests that the profile of the represented form's body portion would appear rectangular or square while the same portion would be cylindrical or ovoid in horizontal cross-section. A brief discussion of automatic glass container production is presented in the introduction of that section of the report which pertains to The Green study area.

The same test probe encountered an opaque white glass button of pressed manufacture. If cross-sected vertically, the complete and unreconstructed from would appear concavo-convex. It appears circular in planview. Four equally spaced holes extend from a circular depression of the obverse surface to through the reverse surface. A brief history of clothing buttons is presented above (Baltimore Life Insurance Property/776 E. Main St.).

A single unreconstructed portion of a pink, plastic hair baret was found in the second probe. The baret is molded in the form of a butterfly. Its obverse side is designed to accommodate a metallic wire clasp which is not extant. A very brief history of plastic manufacture is presented below (Pokorney #1 Property).

Rose Property/ 101 Water Street

Interpreted form date range: none.

Comments: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Belt Property/ 47 Water Street

Interpreted form date range: 1850 - 1913.

Comments: Three crossmending body and base-body fragments of an amber, transparent glass wine hock were found within shovel test probe no. 8. Basal treatment on the represented form includes a small regular mamelon or molded post bottom depression. The represented form was probably blown in a dip mold. The base appears concave in profile and circular in planview. The body portion is typically cylindrical when cross-sected vertically and circular in horizontal cross-section. The particular configuration of wine bottle represented by the extant specimens is referred to as a hock. Its configuration could be described as an elongated, thin champagne style wine bottle. In fact, the type of finish that is characteristic among wine hocks is the same as that associated with champagne style bottles. One indication of the evolution of wine hocks might be interpreted from another name associated with this container, "Rhine wine." The use and possible origin of this type of form may have occurred in Germany's wine country.

Further techno-morphological information such as available sizes, as well as economic information can be extracted from an advertisement for wine hocks in Putnam's circa 1895 glass catalogue. The prices range from $8.50 per gross of two ounce bottles to $33.50 for a gross of quarter gallon size bottles (Putnam 1965:155).

No other specimens recovered form this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Lock Haven U. President's Property

Interpreted form date range: none.

Comments: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

Date ranges: 1880 - 1920.
1869 - 1987.
1880 - 1987.

Comments: The rim, body, and basal rim portions of a colorless, transparent glass lamp chimney was located within shovel test probe no. 16. The general, interpreted configuration of the form involves a vertical profile that may be described as bulbous or hobbled. In plan view the represented chimney maintains an overall circular configuration. The top rim undulates with an applied single bead corresponding to the scalloped or undulating rim. The discovery of new fuels was an excellent developmental impetus for the technological aspects of the nineteenth century glass industry. It also stimulated the industry by creating a market for glass lamps and their parts. Lowell Innes notes the success of the industry in and near Western Pennsylvania:

> Pittsburgh's chimney business alone in 1878 reached a yearly value of $600,000. Some 790 hands produced 16,200,000 chimneys. To pack the output of just nine factories, 725 tons of straw were required. Pittsburgh boasted that it made all the flint glass chimneys produced in the United States and four-fifths of all others. Not far away, Acme Glass of Steubenville persisted in its claim that it was the largest chimney house in the country.
>
> (Innes 1976:47)

Sperm oil was one of the more prevalent lamp fuels during the first half of the nineteenth century. More inexpensive, but less clean burning was lard oil. More efficient and also inexpensive, yet also more dangerous lamp fuels of that period included camphene as well as mixtures of turpentine and alcohol. In 1846, Abraham Gesner invented kerosene. Twelve years later, Michael Dietz successfully developed and patented the flat-wick burner which made it feasible to convert the whale oil (and substitutions), solar style lamps to kerosene lamps by changing the burner. this evolution in design is characteristic of what James Deetz refers to as "socio-technic function" where the lamp indicated a value to the owner beyond a functional capacity - it could be recycled (American Life Foundation 1982:8). Despite the development and growth of gas lighting techniques, oil lamps remained prominent as household fixtures late in the nineteenth century (American-Life Foundation 1982:8).

Glass lamp chimneys where pressed or blown in manufacture. By 1875 a technique was developed by the Atterbury's to accomplished without producing a seam on the chimney (Innes 1976:314). Other devices which were invented for the mechanized production of lamp chimneys included the patent opener that opened and spread the chimney. The patent crimper enabled unskilled laborers to finish off a larger number of chimneys, much to the dismay of skilled and eventually striking blowers:

> On November 11, 1875, Paul Zimmerman patented a machine for

> fluting or crimping open-ended glassware - a combination centering rest with a tapering tool adapted to both flare and crimp. A highly paid gaffer with a helper could fashion 300 plain or 250 crimped chimneys in a single move. An ordinary worker with a patent crimper, without a helper, could make 300 . . .
>
> (Innes 1976:315-316)

The breakage of chimneys from the heat generated by lamps prompted the development of improved annealing techniques such as those of La Bastie (1878), Bakewell-Page (1822), Paul Zimmerman (1860s), and the Gill Brothers. The following Pittsburgh area companies were primarily engaged in lamp chimney production:"Evans, Sell, Dithridge, Excelsior Flint Glass, Plunkett, Keystone, James Lindsay, Challinor-Hogan, Kunzler, and the Crescent Works . . . . Bakewell, Pears, McKee Brothers, King and Son, and McCully turned out chimneys as one line among others, often in very substantial volume." (Innes 1976:317).

It would be spurious to suggest more than a general, early twentieth century manufacture date for the specimen represented in this assemblage. It is the contention of this analyst that the represented form may be attributed to a period between 1880 - 1920.

Associated but unreconstructed body fragments of an aquamarine preserve jar were found within shovel test probe no.16 The extant specimens include seam lines indicative of manufacture in a full-height, two part mold. Embossed across the extant body is, ". . ./[P]ATEN[TED]/ [N]OV 30 . . ."This embossment is typical of preserve jars manufactured under the Mason patent. A brief history of glass preserve jars is presented below (Ryan Property).

Temporally diagnostic ceramic specimens from shovel test probe no. 2 include two body fragments of a decorated flatware form of soft white paste. The obverse surface of the flatware form is decorated with a transfer blue floral pattern, similar to poppies. A discussion of transfer decoration is presented below (Haussener/J. Hanna Property).

No other specimens recovered form this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

112 Mill Street Property

Date range: 1860 - 1910.

Comments: One body fragment of a ceramic, stoneware form of a hollowware configuration (possibly a crock) were encountered within the excavated fill of shovel test probe no. 1. The exterior surface of the extant specimen is pale brown in color and may have been salt glazed. The interior and paste appear characteristically porous and gray in color. The fragment demonstrates curve-walled attributes typical of vessels with cylindrical vertical profiles and circular horizontal cross-sections. A brief history of stoneware containers is presented in the "Stoneware" category of that section of the report which pertains to The Green study area.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

115 Mill Street Property

Interpreted form date range: none.

Comments: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

116-118 Mill Street Property

Date ranges: 1901 - 1987.
1909 - 1987.
1870 - 1925.

Comments: A complete and unreconstructed glass marble was recovered from shovel test probe no. 1. The color of the represented form can be described as an opaque white, surface swirl within an emerald green matrix. A brief history of glass marbles is presented below (Stern Farm).

The second shovel test probe revealed a complete and unreconstructed plastic, toy pig. The form was apparently red-pink in color which has now faded to red-yellow on one side, indicating that the form was exposed to the sunlight for an extend period of time. A very brief discussion of developments in plastics is provided below (Pokorney # 1 Property).

The front cranial fragment of a bisque doll head was also recovered from probe no. 2. The extant face exhibits open eyes, hand painted, molded eyes and mouth. The bisque, interior surface is characteristically white in color. The exterior or facial surface is painted in pastel flesh tones with a pink (blushed) cheek. The eyes are painted with black while the mouth and extant eyebrow are light brown. The right side of the face is represented. Although bisque doll parts continues to be an industry at this date, the represented segment probably date two a period between 1870 and 1925. This interpretation is based on a general similarity to bisque doll fragments encountered in the assemblage of historic period artifacts from the excavation of the Woodville or Neville House midden (36AL29) near Pittsburgh, Pennsylvania (Winter, Casselberry, and Richardson 1985:840).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

120 Mill Street Property

Date range: 1880 - 1987.

Comments: The single diagnostic artifact at this location is the body fragment of a decorated, soft white paste (whiteware) hollowware vessel. The paste of the extant specimen is characteristically porous and white to off-white in color. Both the interior and exterior surfaces are glazed. The exterior surface is decorated with a blue pattern which is figurally unidentified but which was apparently applied in a method utilizing a sponge. A brief reference to this type of decoration is offered below (Queen's Run Structure #11).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

121 Mill Street Property

Interpreted form date range: 1845 - 1913.

Comments: Two crossmending body fragments and an associated fragment within shovel test probe no. 1 represent an indefinite function alcoholic beverage bottle of amber, transparent glass. The represented form was apparently blown in a manual, two part mold. The body portion appears rectangular if cross-sected vertically, while it demonstrates an ovoid horizontal cross-section. Although it is a very sparse amount of information on which to base dates, a general range of 1845 - 1913 may be assumed (Newman 1970:72).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological or historical information toward the accurate calculation of interpreted form dates.

123 Mill Street Property

Date ranges: 1880 - 1915.
1860 - 1910.
1901 - 1987.
1845 - 1913.
1850 - 1903.
1900 - 1987.

Comments: Test probe no. 1 at this site contained a single neck-finish fragment of colorless transparent glass. The represented bottle maintained a crown top style finish with an extant ferrous metal wire bail attached around the upper neck, beneath the rim portion. The represented bottle was manufactured in a two part, full-height mold via a semi-automatic or early automatic process. In profile the neck of the bottle appears conical while it is circular in planview. The form represented by this specimen apparently contained an effervescent liquid which necessitated a lightning-type stopper or Hutchinson stopper. Both of which would leave a remnant wire attachment that is found on the extant specimen. The date range during which both of these closure mechanisms were employed included 1880 - 1915 (Newman 1970:75).

A single stoneware body fragment of an indefinite hollowware form was located within the matrix of the same probe. The extant segment is apparently the upper body fragment of a body portion which is cylindrical in profile and circular in planview. The exterior surface is salt glazed and gray in color. The interior surface is also glazed but dark-brown or red in color. The paste is porous or soft and pale red-brown in color. A brief history of stoneware vessels is provided in the category of that same name within that section of the report which pertains to The Green study area.

A single, complete glass marble was recovered from shovel test probe no. 2. The spherical form includes a primarily yellow matrix with a red swirl. A brief history of glass marbles is offered below (Stern Farm).

A glass bottle represented in the fill of test probe no. 2 involves a dark-green, transparent glass neck-finish fragment. The specimen exhibits a two part, down-tooled, applied finish with remnants of a lead foil seal around the neck. This is typical of brandy style bottles. The finish is typical of those which accommodate cork stoppers, which is not extant in this instance. The neck portion appears bulbous in vertical cross-section while it is circular in planview. The earliest types of brandy-wine bottles were generally blown in one part dip molds, after which the shoulder and neck were formed by hand. the string rim that is associated with brandy style finishes was then applied to the rim of the lip so that a waxed cloth

could be tied over the mouth of the earliest examples (Spillman 1983:55). Three piece molds were used in the manufacture of later examples. "One part or piece of the mold formed the body below the shoulder and the other two pieces were used to form the shoulder and neck, usually leaving a horizontal mold seam around the bottle below the shoulder. After the bottle was removed from the mold, the neck and lip were finished by hand. Similarly shaped bottles were also made in full-size two-piece molds and thus bear mold seams on each side of the body. " (Spillman 1983:55). The use of the two-piece mold in the production of brandy-wine style bottles probably dates to the 1840s. Three part molds generally date to the 1850s (Spillman 1983:55).

The term "brandy style" refers to the finish characteristics of the bottle represented in this category rather than the contents once held by these containers. More accurately, 19th century wine bottles could also assume the configuration referred to by the name.

Associated, but unreconstructed, base-body and neck-rim fragments of a bulk liquid container made of stoneware were encountered in the second test probe. The extant finish is down-tooled. The neck is conical in profile and circular in planview. The shoulder portion is also of this same configuration. The base portion is flat when viewed in vertical cross-section and circular in horizontal cross-section. The probable closure for the represented bottle is a non-extant cork stopper. The interior and exterior surfaces are glazed. The body-base portion is off-white to gray-white in color, as is the paste, which is somewhat vitreous and hard. The rim-neck fragment appears red-brown in color with a gray color paste.

> Pottery ink containers came mostly from France and England. There are two reasons for this: Both of these countries have long been famous for the production of high-quality ink, and they are also famous for their excellent deposits of clay and resulting clay bottles.
>
> One of the main features of pottery ink bottles from England and France is their nonabsorbance caused by high firing which makes the bottles like stone. Depending on the techniques used, these stoneware bottles have glazes ranging from dull to very shiny. The surface texture, too, varies from smooth to granular, the latter being the result of salt glazing.
>
> English ink containers made by J. Bourne & Son for the Arnold Ink Company came in shades of brown, while those produced by Bourne for the Prang and Carter ink companies are cream-colored or white.
>
> (Munsey 1970:135)

A porcelain electric fence insulator is present among the artifacts recovered from shovel test probe no. 2. The specimen is incomplete and not reconstructed. It appears cylindrical in configuration. The front, or face is flat with the following embossed information "T.P.I. (in down turned arc)/ NO. 1 (In down turned arc)/ PAT. APR/ 803/ T." A discussion of electric fences is provided above (Laubach Property).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

City Owned Lot/Hawley Steam Sawmill Site

Date ranges: 1860 - 1913.
1845 - 1915.
1911 - 1950.
1845 - 1913.
1800 - 1987.
1860 - 1910.

Comments: A single base-neck fragment of an amber glass bottle is represented. Techno-morphological features of this form include basal marks of a post bottom mold indentation with embossment. Seam lines are indicative of production in a two-part, full-height mold. In vertical cross-section the basal portion appears concave while it is square with beveled or chamfered corners in planview. The body exhibits the same horizontal cross-section and is rectangular in profile. The neck portion is conical in configuration while the shoulder is domed in vertical cross-section and square with beveled corners when cross-sected horizontally. Embossed down the front side of this form is "DR J. HOSTETTER'S STOMACH BITTERS". "IG Co L/ 52" is embossed diagonally across the basal surface. The techno-morphological attributes suggest a manufacture date range of 1860 - 1913 (Newman, 1970:72-75). The formula for "Hostetter's Bitters" was developed by the father of David Hostetter. Hostetter and George W. Smith began manufacturing the medicinal concoction in 1853 out of Pittsburgh, Pennsylvania. After Smith's death in 1884, Hostetter & Co. was established. The firm became known as "The Hostetter Co. in 1888 after David Hostetter died and the family continued to manufacture the bitters. In 1906, the passage of the Pure Foods and Drugs Act forced the reduction of the alcoholic content to 25%. During Prohibition, the medication in the formula was increased which decreased sells by increasing the inpalatableness of the drink. After prohibition the post-1906 formula was restored. The bitters were known as "Hostetter Tonic" between 1954 and the companies demise in 1958 (Fike 1987:36). "Bottle makers included several Pittsburgh glass houses: S. McKee & Co. (SMcK & Co.), ca. 1860-85; A. & D. H. Chambers (A & DHC), ca. 1865; Thomas Wightman (TW & Co.), ca. 1870s; Ihmsen Glass Co. (I.G. Co.), ca. 1870-95; W. McCully (W. McC & Co.), ca. 1886 (Toulouse 1972)." (Fike 1987:36).

The reader is referred to the description of medicinally related glass artifacts from The Green for a brief discussion of patent medicines.
A second glass bottle in the assemblage is represented by a single colorless glass body-rim fragment. The finish on this represented form is described as a one-part, molded, prescription style lip which probably accommodated a non-extant cork stopper. Seam lines indicate that the represented prescription bottle was manufactured in a two part, full-height mold. The body portion appears rectangular or square in profile while the horizontal cross-section is ovoid. The neck maintains a cylindrical configuration while the shoulder portion is domed and ovoid in profile and planview respectively. The techno-morphological attributes of the extant specimen suggests a manufacture date range of 1845 - 1915 (Newman, 1970:72-75).

Form no. 3 among the chronologically diagnostic glass specimens is represented by three associated but non-crossmending shoulder-rim, body, and shoulder fragments of a colorless, transparent milk bottle. The shape of the represented body portion involves a cylindrical profile and circular planview. the shoulder portion is down-sloped in vertical cross-section and again, circular in horizontal cross-section. ". . .E" is embossed around the shoulder portion, just below the rim segment. Techno-morphological aspects of this form imply that it was manufactured in an automatic glass blowing machine. A brief discussion of the development of automated processes in the production of glass articles is presented in the introduction to that section of the report which pertains to The Green study area.

Dr. Harvey Thatcher, a druggist from Potsdam, New York is credited as being the "Father of the Milk Bottle." In 1884, Thatcher invented his first milk bottle. "The first of these bottles utilized a nickel-plated Lightning-type fastener. In 1886 Thatcher modified the bottle so that the metal closure was replaced with a glass one. The improved lid still operated on the Lightning principle." (Munsey 1970:191). In 1889 the lightening type closure began to be replaced by paper caps. Thatcher called this his "Common Sense Milk Jar." They involved the paper cap being inserted into a specially formed groove in the mouth of the bottle (Munsey 1970:191). Munsey's following discussion continues the chronology of milk bottle developments:

> Even though there were a few square milk bottles as early as 1900, the round bottle retained its popularity until the round squat bottle was invented by Julian H. Toulouse in 1936. This shape was popular only a few years, until 1940 when Royden Blunt developed a square squat bottle that was readily accepted.
>
> In the 1930s the Cream Top bottle was introduced and was popular for a time. This bottle featured a bulbous neck in which cream collected. The development and perfecting of homogenization did away with the use of this type of bottle by the late 1940s.
>
> Throughout the relatively short history of the milk bottle there have been basically two methods of marking used. Almost from the beginning embossed lettering and designs were used on the majority. Most embossments were the result of an individualized plate inserted into a standard mold. In the mid-1930s applied color labelling became financially practical and it began to replace embossed lettering.
>
> (Munsey 1970:191)

A discussion of plate molds is provided below (Sanders Property).

Form no. 4 consists of a single shoulder-finish fragment of transparent, aquamarine glass. The extant finish is a two part, applied, Perry-Davis type lip which probably accommodated a non-extant cork stopper. The represented form was apparently blown in a two part, full-height mold. The neck is characteristically cylindrical in shape while the shoulder appears domed in profile. The horizontal cross-section of the shoulder portion is rectangular or ovoid, giving some indication of the body portions planview. Two-part, full-height molds can be attributed to a period between 1845 -1913 (Newman 1970:72).

Diagnostic ceramic specimens include a kaolin clay pipe fragment. The extant specimen represents the rear rim portion of the bowl. A vertical seam line is extant and only visible on the exterior surface. The represented form consists of a soft white kaolin paste and is characteristically unglazed and gray-white in color. The bowl portion is circular in planview. In planview the bowl contracts from the rim. The diminutive nature of the pipe fragments and absence of historical information impressed or embossed on the extant fragments prevent the assignment of the represented form to any period other than a general nineteenth through twentieth period time frame (Dr. R.C. Carlisle 1988:personal communication).

A second ceramic form of significance involves a single fragment of the body-rim portion of a stoneware crock. The paste is porous and white in color. The represented form appears cylindrical in profile and circular in planview. The surfaces are glazed on the exterior and interior surfaces. The exterior surface color is pale gray while the interior surface is dark red-brown in color. The rim shape may be described as square in shape when viewed in vertical cross-section. A brief history of stoneware vessels is presented above in the "Stoneware" category of that section of the report which pertains to The Green study area.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates

Rapmitco, Inc. Property

Date ranges: 1911 - 1987.
1850 - 1880.
1800 - 1900.

Comments: A single colorless body fragment of an indefinite function bottle were found within shovel test probe no. 13. The uniform characteristics of the extant specimen, in the absence of definitive techno-morphological attributes, imply an automatic mode of production for the represented container. A brief history of automation within the glass industry is provided in the introduction to that section of the report which pertains to The Green study area.

Temporally diagnostic ceramic specimens include representative fragments of two redware vessels encountered within the second test probe. The first represented form includes a redware fragment of possibly the handle portion of a glazed hollowware form. The glaze is typically dark brown over a very porous or soft paste. The second form is represented by a spall of diminutive size yet distinct from the fragment representing the first redware form described above. The second form exhibits a glazed surface which has a speckled appearance. A brief history of redware manufacture and utilization is provided above in the category of that title within that section of the report which pertains to The Green study area.

A third represented ceramic form from shovel test probe no. 2 involves associated body fragments of a decorated soft white paste hollowware vessel. The interior surface of the extant portions is glazed and white in color. The exterior surface is decorated in a swirled pattern on a blue-gray background with a gray ring on white border. The swirled pattern includes colors of white, pale gray, dark brown, and red and is often referred to as "mochaware." "Mochawares were first produced by William Adams of Tunstall, England, sometime between 1787 and 1805, but the decorative designs were continued by Adams and many other firms until the 1900s. The mocha design was created by using acid to swirl the decoration before glazing (Robacker and Robacker 1978:24)." (Hochrein and Carlisle 1983:66).

No other specimens recovered from this study area demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Stamm Property/854 E. Main St.

Interpreted form date range: 1845 - 1913.

Comments: Only one temporally diagnostic form is represented in the artifact assemblage of this site. That form is represented by a single transparent, aquamarine base-body fragment of an indefinite function container. The basal surface exhibits a post bottom mold line indicative of a two or more part post bottom mold. The base is concave in vertical cross-section while it appears circular in planview. The body portion apparently continues the circular horizontal cross-section. The representative specimen was found within shovel test probe no. 5. Newman (1970:72) includes two part molds within a temporal span of 1845 - 1913.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Santonica Property/852 E. Main St.

Date range: 1850 - 1913.

Comments: The first shovel test probe initiated at the site uncovered a single body fragment of a ceramic bulk fluid container. The represented form was probably a bulk ink bottle, pottery beer bottle, or pottery mineral water bottle. As one example, a brief discussion of pottery ink bottles is provided below (123 Mill Street). Its interior surface and paste are characteristically gray and slightly porous in appearance. The exterior surface is glazed to a brown color. The extant portion of the body is impressed with a partial seal reading, "VITRE . . .(in upturned arc)/J . . . (in an upturned arc)/. . ." the represented container would have exhibited a body which was cylindrical in vertical cross-section and circular in horizontal cross-section.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Bassinger Prop./836 E. Main St.

Interpreted form date range: 1911 - 1987.

Comments: The ghost mold liner on the crossmending and associated fragments of colorless, transparent glass which represent an unidentified glass container indicate that the represented forms were produced from an automatic glassblowing machine. The extant specimens were found within shovel test probe no. 19. A brief history of the automated production of glass articles is provided in the introduction of that section of the report which pertains to The Green study area.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Baltimore Life Ins. Co. Prop./776 E. Main St.

Date ranges: 1869 - 1930.
1909 - 1967.

Comments: Five crossmending fragments of an opaque white "opal" glass preserve jar liner were located within the fill of test probe no. 23. The extant specimens, which exhibit corrosion from the zinc cap which they once lined, display historical information. Embossed around the represented perimeter of the obverse surface is "MASON FRUIT JAR - CO-/BOYD PORCELA[IN] . . .G". Embossed in the center of the reverse surface is the reversed image of "41". A brief history of opal glass liners and preserve jar production is provided below (Lock Keeper's House), (Ryan Property).

Shovel test probe no.23 also yielded a complete, unreconstructed, translucent, colorless plastic button. In profile, the form is generally convex. The form is circular in planview. Two holes are drilled in the center of an elliptical depression also oriented in the obverse surface of the form. Surprisingly little literature exists on the design and manufacture of glass buttons. In general, the production of buttons dates to prehistoric times. From then until the thirteenth century, the button was ornamental and probably represented a status symbol of some kind. The button evolved into a practical object after the introduction of the button hole in the thirteenth century. Circa 1250 a guild for button maker's was established in Paris. As a recognized trade in England during the later half of the sixteenth century, button making employed a relatively large part of the work population. However, buttons were still too expensive for most people. It was during the eighteenth century that the technology developed to manufacture buttons inexpensively and from raw materials ranging from metal to ivory (Readers Digest 1980:53-54). The buttons represented in the Lock Haven-Lockport assemblage were pressed in manufacture. That process first involves the heating of the glass into a plastic state. At that point the buttons are nipped out of the molten mass by a pair of long handled iron pliers. The pliers have a die and counterpart on its ends (Albert and Kent 1949:51).

Although the 1897 Sears, Roebuck catalogue does not include buttons specifically referred to as "glass," it does include "agate buttons" in a variety of sizes and designs. they range from $0.03 to $0.19 per gross (Sears, Roebuck and Company 1968:320).

No other specimens recovered form this study area location demonstrate sufficient techno-morphological or historical information toward the accurate calculation of interpreted form dates.

Kuntz Prop./772 E. Main St.

Interpreted form date range: 1911 - 1987.

Comments: Although definitive techno-morphological features are absent from the single specimen, a fragment of colorless container glass maintains the clarity and uniformity of the matrix to imply that it was manufactured automatically. The represented form was located within shovel test probe no.26. A brief history of the automation of the glass container industry is provided in the introduction to that section of the report which pertains to The Green study area.

No other specimens recovered form this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Yost Prop./215 Race St.

Date ranges: 1909 - 1987.
1909 - 1987.

Comments: The third shovel test probe initiated at this site uncovered two synthetic plastic artifacts. The first represented form is an opaque, white plastic foot cap for an unidentified piece of furniture for the purpose of preventing the metal or wood leg of the represented furniture from scuffing floor surfaces. The cap is cylindrical in profile and circular in planview.

The second represented plastic form is the body-rim fragment of a transparent, colorless plastic drinking glass with what may be described as an embossed "fish scale" design. The represented form's body portion configuration expanded from the base when viewed in profile and is generally circular in horizontal cross-section. The rim portion appears as having a molded bead shape. A very brief discussion of the history of plastic is presented above (Porkorney/Saudi Property).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Clark Prop./784 E. Church St.

Interpreted form date ranges: 1911 - 1987.
1911 - 1987.

Comments: All of the temporally diagnostic glass specimens from this site were recovered from test probe no. 60 and display techno-morphological characteristics typical of automatically blown glass forms. Form no. 1 involves associated but non-reconstructed neck and body fragments of an emerald green soda beverage bottle. The ghost mold line accompanying a vertical seam line on the extant body fragment indicates that the represented form was automatically produced. Similar attributes are associated with a second form of amber glass representing an unidentified beer beverage bottle. Discussions of the developments in the beer industry (Setti Property), and automated glass production (introduction to The Green study area) are provided below.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Hendricks Prop./775 E. Church St.

Interpreted form date range: none.

Comments: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

J. Caruso Property/770 E. Church St.

Interpreted form date range: none

Comments: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

Interpreted form date range: 1911 - 1987.

Comments: The single glass artifact recovered from this site, a body fragment of an amber colored bottle, was found in shovel test probe no. 71. The color and stippled embossment on the extant portion, which may be of either the shoulder or lower body, imply that the represented form was a beer bottle of recent origin. The represented form was manufactured by an automatic glass blowing machine. Beer, perhaps the oldest alcoholic beverage, first made its appearance in America via breweries of sixteenth century Roanoke, Virginia (Ketchum 1975:104). In Pennsylvania, William Penn established one of the first breweries at Pennsbury, Pennsylvania. As with most alcoholic beverages, beer was initially dispensed and consumed at taverns. most cities included at least one brewery by 1860. "Only beer carried great distances to isolated areas was bottled. The bottles involved were often the heavy blob-top soda water. The bottles were produced in common aqua and light green, sometimes in cobalt-blue, and in amber." (Munsey 1970:116). The standard bottle shape commonly scene today was first adopted during the 1870s:

> The first bottles of this type were free of embossment, in quart size, and were approximately ten inches high. they featured a cylindrical body about six inches around, with slightly sloping shoulders and tapered neck and lip about four inches in circumference. These bottles utilized a cork closure that was held in by a wire over the cork and twisted around beneath a ring of glass on the neck.
>
> (Munsey 1970:116)

The use of embossment on beer bottles began about 1870 in the east and midwest. the techno-morphological development of the Lightning stopper in 1875 and the Baltimore loop seal (1887) presented brewers with the first practical closures (Munsey 1970:116). The type of closure was only one characteristic considered for the proper packaging of beer. Unlike ales or stouts, the lower alcoholic content of beer made it more susceptible to spoilage. The discovery and adaptation of the principle of pasteurization in the 1870s was a significant advancement toward retarding spoilage. It also resulted in the creation of a sub-industry to brewing:

> With the notable exception of Anheuser-Busch, most brewers of the period preferred to turn over the process of pasteurization and bottling to a concessioner - a bottler - and to concentrate their own efforts on beer production.
>
> (Wilson 1981:2)

Another feature of the beer bottle associated with pasteurization was its color:

> The preference of brewers and bottlers for an amber glass container made in a style associated with "Export Beer" appears to have asserted itself very rapidly after the introduction of pasteurization and the use of glass bottles. Doubtless the industry saw in amber glass an additional protection from light and heat for their delicate product. (Wilson 1981:2)

The initiation of National Prohibition on January 16, 1920 curtailed the legitimate manufacture of beer. Some breweries, however, were able to survive the 13 years of prohibition. Another major influence on beer consumption patterns in the United States was the introduction of television in 1948. This technological achievement effectively moved beer drinking from tap rooms and movie theatres, to the home and subsequently ushered in the packaged beer industry. National advertisement via television commercials was also taken advantage of by those breweries which could afford it (Robertson 1982:44-46).

A brief discussion of automated glass production is presented in the introduction to that section of the report which pertains to The Green study area.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Hunter Prop./752 E. Church St.

Interpreted form date range: 1911 - 1987.

Comments: The excavation of shovel test probe no. 73 at this location uncovered crossmending fragments of at least one glass vessel blown in an automatic glass blowing machine. The represented form is a transparent, amber glass beer bottle with an embossed, stippled exterior surface on the lower body or lower shoulder portions. Brief discussions of beer industry developments (Selti Property), and automation in the glass industry (the introduction of that section of the report which pertains to The Green study area), are provided below.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

A. Caruso Prop./750 E. Church St.

Interpreted form date ranges: 1911 - 1987.
1911 - 1987.
1911 - 1987.
? - ? .
1840 - 1913.

Comments: Shovel test pit no. 80 contained 24 associated and four crossmending fragments of a colorless, transparent glass culinary preserve jar. The finish includes a continuous thread style that probably accommodated a metallic screw on cap. The general configuration of the represented container is of being cylindrical with a domed shoulder portion. Techno-morphological features include a stippled basal surface with circular basal seam ghost mold lines. Ghost mold lines also accompany vertical seam line on an extant body portion. These indicate that the jar was manufactured via an automatic glass blowing machine. A brief discussion of developments in the automated production of glass forms is presented in the introduction to that section of the report which pertains to The Green study area.

The general clarity and uniformity of glass fragments representing two other colorless indefinite function glass vessels from test probe no. 80, suggest that they were also manufactured automatically.

The same probe yielded fragments of an automobile headlamp. The colorless, transparent article of pressed glass appears concavo-convex in profile with molded ribs (horizontal and vertical) on the interior surface.

The final temporally diagnostic form from the second probe and of the site involves crossmending fragments of transparent, pale green glass that represent the mamelon or basal portion of an olive oil bottle. The deep mamelon is characteristically deep and concave in vertical cross-section while it is circular in planview. The represented bottle was probably free blown or blown in a dip mold. The use of olive oil as a common cooking medium probably followed the Spanish tradition of cuisine (Toulouse 1970:67), and no doubt Mediterranean traditions. The popularity of this type of oil and its conduciveness to glass packaging is evidenced by the discovery of olive oil bottles as far west as California in what are typically considered uncultured mining camps of the 1860-70s (Toulouse 1970:67). Mining camps in northern territories such as Montana were also supplied with olive oil. Bottles excavated from the steamboat Bertrand were labelled "POSSELFIT/HUILE/D'OLIVE/SURFINE/MARSEILLE." (Switzer 1974:65). Bottles morphologically similar to that represented in the Lock Haven-Lockport study area have also been found at Fort Laramie, Wyoming and Fort Union, New Mexico, dating to between 1865 and 1890 (Wilson 1981:90).

Entries into the 1897 Sears, Roebuck and Company Catalogue give an indication of the turn-of-the-century cost of this domestic commodity:

Olive Oil

Always include such articles with your freight shipment. It always pays to ship by freight, as you can save very much more than on express shipments.

	Case	Bot.
G1277 Domestic, half pints, 2 doz. in case.	$1 15	$0 07
G1278 Domestic, pints, 2 doz. in case.	2 00	10
G1279 Domestic, quarts, 1 doz. in case.	3 00	20

(Sears, Roebuck & Co. 1968:13)

The type of glass container suggested by the extant specimen implies a date of manufacture between 1840 and 1913.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Castanea Fire Co. Property

Interpreted form date range: 1911 - 1987.

Comments: Although definitive techno-morphological features are absent from the single specimen, a fragment of colorless container glass maintains the clarity and uniformity of the matrix to imply that it was manufactured automatically. The represented form was located within shovel test probe no. 1. A brief discussion of the automated production of glass forms is provided in the introduction to that section of the report which pertains to The Green study area.

No other specimens recovered form the study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

**Hammermill Paper Co. Property Reach:
Powerlines to Concrete Watertank**

Interpreted form date ranges: 1845 - 1913.
1880 - 1915.
1911 - 1987.
1911 - 1987.

Comments: The first shovel test probe at this location revealed

temporally diagnostic glass forms. The first form is represented by an associated body-shoulder fragment and base fragment of a probable alcoholic beverage flask. The extant specimens are blue-green in color and transparent. The basal surface exhibits an open glass pontil scar. The represented flask was most likely blown in a two part, full-height mold. The base appears concave in vertical cross-section while the shoulder portion is domed in profile. Perhaps the analysis and collection of no other type of glass bottle has placed so much emphasis on the type of mold utilized in each forms manufacture than that of figural whiskey flasks. there is no way of determining whether the representative fragment is derived from a figural flask. However the discussion of figural flask developments may give an indication of general developments in the history of flasks.

Generally, more elaborately designed flasks were produced earlier. "As midcentury approached, the trend toward a simpler style appeared. in general, though some flasks first brought out in the late 1840s and 1850s continued to have slightly convex sides and ends rising in a curve and rounding to base and shoulder, the majority by 1850 were thinner through (front to back), and the norm became flat sides bearing the design and ends rising vertically or at an outward slant to a rounded shoulder . . . . Excepting the Shield and Clasped Hands, . . ., of the Civil War period, decoration was progressively simplified in the third quarter of the century. The designs were on plain sides with only a fine vertical mold seam at the end or less frequently, a medial vertical rib . . . . About the late 1860s many of the more practical, nearly flat-sided flasks were given a narrow paneled end or, as it is more frequently called, a 'broad flat rib'. One rib or panel was part of each leaf of the mold, which resulted in a diagonal mold seam on the base." (McKearin and Wilson 1978:412).

Munsey comments that from 1850 to 1870, "The American eagle continued to be the most popular embossment but it seemed to lack the earlier vigor and expression. Portraits disappeared almost completely, as did many of the other elaborate designs . . .. Replacing these earlier types were some flasks simply inscribed with the name and location of the glass works that made them and such decorations as the Union and clasped hands. . . . " (Munsey 1970:88-89).

In regard to the marketing of figural flasks, McKearin and Wilson have determined that the sale of the containers with the contents already in them was not common until after 1850:

> Though distillers shipped their liquors in demijohns as well as in wooden vessels such as barrels and casks, apparently they did not bottle them for sale in small quantities until the late 1850s. [McKearin and Wilson] have found no advertisement or other evidence that early bottles and flasks were offered to distillers, or called to their attention. As for beer, ale, and porter, which were often bottled at the brewery, flasks were not the right shape for them . . . .
> (McKearin and Wilson 1978:417)

More likely sources for figural flasks were large, wholesale glasshouses such as Dr. Dyott's in Philadelphia or Robinson & Sons of Pittsburgh. The larger cities and towns were often distribution centers for flask manufacturers. These manufactories would usually incorporate agents as the middlemen along tradelines to other communities. Agents were usually merchants who operated general stores or wholesale/retail stores. "Sometimes a glass company advertised in its own name designating its representative; sometimes the agent, or consignee did so in his name." (McKearin and Wilson 1978:417)

A probable soda or beer bottle is represented by the extant rim portion. The colorless, transparent fragment involves a two part, "blob top" finish. Such finishes are generally associated with soda or "pop" bottles. "The earliest of these bottles had tops that were applied separately during their manufacture. To hold the cork under pressure, a wire was placed over the top of the bottle and secured around the neck. These early blob-top soda bottles can be found with pontil scars and iron pontil marks but are mostly found with plain bottoms because they became most popular after the development of the snap. The color an finish represented is consistent with a date range of 1880 - 1915.

Shovel test probe no. 1 also yielded a body fragment of an automatically blown colorless glass soda bottle. The body portion of the represented form is cylindrical in shape with an exterior surface covered by an embossed stipple pattern. A brief history of automation in the glass container industry is provided in the introduction of that section of the report which pertains to The Green study area.

An amber glass beer bottle is represented by four associated body fragments. Although there are no definitive techno-morphological marks on the extant cylindrical body segments, their uniformity and clarity imply the automated manufacture of the represented bottle. A brief discussion of beer bottles is presented below (Setti Property).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Western Bank Edge Locality/Jay St. to Mellingers Prop.

Interpreted form date range: none.

Comments: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

Mellinger Property, Lower Lockport

Interpreted form date range: 1930 - 1987

Comments: The single diagnostic specimen represented in this area's assemblage involves the base-body portion of an unidentified glass container that demonstrates the embossed trademark of the Owens-Illinois Glass Company. The trademark includes an "I" within and "O" which is interlocked with a diamond. To the left of the mark is a number indicating the manufacturing plant. To the right is the manufacturing date and below the mark is the mold number. The example represented in the Lower Lockport study area exhibits code numbers indicating that the represented form was manufactured in Streator, Illinois in mold no. 12. Although the number to the right of the mark is "2" the date of 1902 would be inconsistent with the date of existence for any of the Owens-Illinois plants. The Streator, Illinois plant was organized in 1930 and continues to operate to the knowledge of this researcher (Toulouse 1971:395).

The Owens-Illinois Glass Company was formed in 1929 as a result of the merger between the Owens Bottle Company and the Illinois Glass Company. The Owens Bottle Company brought with it five plants under its own name, the Cincinnati Boldt plant, two of six American Bottle Company plants, the Graham Glass Company plants, and 12 Berney-Bond Glass Company plants, along with other single plants. The Illinois Glass Company furnished six plants with four in the east and midwest, and two on the Pacific coast. The Owens-Illinois Glass Company was based in Toledo, Ohio with William E. Levis as the president. Levis was considered the guiding force behind the company until his death in 1950. In 1966, the Owens-Illinois Glass Company became known as "Owens-Illinois Incorporated" (Toulouse 1971:403-406).

No other specimens recovered from this study area location demonstrated sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Porkorney #1 Property , Lower Lockport

Interpreted form date range: none.

Comments: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

Porkorney #2 Property, Lower Lockport

Date ranges: 1880 - 1987.
1909 - 1987.
1911 - 1987.

Comments: This site may represent the situation where older ceramic forms found among artifacts of very recent vintage represent curated items. The provenience of the represented ceramic vessels, however, might also indicate a specifically older portion of the site since the items where found within a single probe. Probe no. 1 contained fragments of at least two soft white paste forms. A represented flatware form is decorated on the interior surface with an unidentified green transfer pattern (see Haussman/Hanna Property). The second represented form consists of a single fragment of a unidentified "spongeware" vessel (see Queen's Run Structure #11).

Shovel test probe no. 3 contained a complete plastic hair comb of a pale (faded) red color. In 1909 Dr. Lee Hendrik Baekeland patented a process for combining phenol and formaldehyde under heat and pressure. The substance which was created was known as "Bakelite," the first form of plastic (Wallechinsky and Wallace, 1978:443). Although this represented form and those found throughout the Lockport/Lock Haven study area probably post date the invention of Bakelite by several years, the date of 1909 represents an absolute early date for the production of these forms.

This probe also contains a fragment of emerald green glass which is usually associated with automatic machine blown soda or beer beverage bottles. The uniform consistency of the extant specimen suggests that the represented form was probably manufactured automatically. A brief discussion of the automated process of glass production is provided in the introduction of that section of the report which pertains to The Green study area.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

R. Donavan Property, Lower Lockport

Interpreted form date ranges: 1911 - 1987.
1911 - 1987.

Comments: An automatic glass blown form of emerald green glass was recovered from shovel test probe no.1. The representative specimen exhibits techno-morphological characteristics indicative of automated manufacture. A brief history of developments related to the development of automation within the glass industry is presented above in the introduction to that section of the report that pertains to The Green study area.

Shovel test probe no. 4 revealed a probable soda bottle fragment with a painted label. The colorless specimen, morphologically, appears to have been manufactured via an automatic glass blowing machine. The production of soda or "pop" grew out of the bottling of mineral water. Joseph Priestley is credited with developing the first practical method of making artificial mineral water with carbon dioxide circa 1770. manchester, England, was the site of the first commercial production of mineral water in 1777. "As early as 1807 an Englishman named Hawkins was granted a patent for an improvement in the original method of production, and it appears that he or one of his partners was selling carbonated water before 1809." (Ketchum 1975:117). About 1838, an entrepreneur from Philadelphia, Eugene Roussel, began to flavor and market soda water from his Philadelphia perfume shop (Munsey 1970:103-104). Roussel's addition of fruit juice to carbonated water was not initially popular. However, by the 1830s, "soda fountains" arose to establish carbonated beverages as a mainstay of American Culture (Ketchum 1975:119).

The soda industry has encompassed a variety of unique inventions and container styles throughout its history. The Hutchinson stopper, Codd stopper, and the Baltimore loop seal capitalized upon designs that took advantage of soda's carbonation to form airtight seals (Munsey 1970:104-105).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Poremsky Property

Interpreted form date range: none.

Comments: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

Laubach Property, Lower Lockport

Date ranges: 1900 - 1987.
1850 - 1870.

Comments: The first diagnostic specimen included in this study area's assemblage is a ceramic electric fence insulator embossed with, "WEDGE C.C.P. Co." The insulator was recovered via the excavation of shovel test probe no. 1 Although historical information could not be found, in the available literature, respect to the embossed maker's mark or the production of ceramic electric fence insulators, advertisements for fence wire in the 1897 Sears and Roebuck catalogue offer some clues to the original appearance of electric fence. The 1897 issue of the catalogue contains over three pages of advertisement for wire fencing. Two types offered include barbed fence wire and smooth fence wire. Both of these types are the most common forms utilized in electric fencing. The advertisements for fencing, however, do not contain any apparatus that are necessary for the electrification of fencing. In fact there is no indication that any of the fencing types offered could be supplied with current. This would imply that the introduction of electric fencing was a twentieth century development.

The excavation of shovel test probe no. 2, located a fragment of a pale aquamarine glass container that exhibits an applied packer style lip. The application of the lip and its formation via a lipping tool, which seems to be the case in this situation, may be dated to 1850 - 1870 (Newman, 1970:73).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Interpreted from date ranges: 1920 - 1950.
1911 - 1987.
1920 - 1957.

Comments: Four represented forms recovered from shovel test probe no. 1 provide interpretable dates. The first represented form is a transluscent, green glass holloware form, commonly referred to as "depression era glass." This type of brightly colored glass of bright colors was most common during the second and third decades of the twentieth century. "The glass of the 1920s reflected the austerity of postwar life. Tableware began to be pressed by automatic machines. Most of this glassware, now collected as Depression glass, was made in midwestern factories." (Spillman 1982:14). Forms of Depression glass were pressed in patterns similar to many nineteenth century designs. However, more contemporary influences were expressed in Art Deco styles during the forties and fifties. By this period (1940s-1950s) the production of Depression glass was divided into manufacture by small-scale, high quality factories such as Fostoria or Cambridge, or mass-production by industry giants such as Anchor-Hocking (Spillman 1982:14).

A second represented form is embossed with a manufacturer's trademark of a "P" within a hexagon. This trademark, to date, has not been identified in available literature. However, such embossment is indicative of production via automated processes (1911 - present).

The third represented form exhibits a continuous thread finish, an techno-morphological features indicative of automatic glass-blowing machine manufacture. A brief history of automated manufacture in the glass industry is presented above in the introductory section of that part of the report which pertains to The Green study area.

The final diagnostic form in this study area is embossed with a superimposed "H" and "A". This trademark is that used by the Hazel-Atlas Glass Company between 1920 and 1964. The Hazel-Atlas Glass Company was begun by C.N. Brady in 1886 at Wellsburg, West Virginia. He expanded the company to include a Washington, Pennsylvania plant in 1887 in order to continue the production of opal glass products in 1887. In 1896 Brady established the Atlas Glass Company in order to utilize Blue glass machines which he had helped develop. After a series of expansive moves in 1901, Brady combined his Atlas Glass and Metal Company with the Hazel Glass Company to form Hazel-Atlas. The "H-over-A" trademark was adopted by the company in 1920 after first using it for tableware. The company at one time operated a maximum of 14 glass plants. However, in 1957 Hazel-Atlas became a division of Continental Can Company which eventually sold the plants to the Brockway Glass Company and the A.H. Kerr Glass Company (Toulouse 1971:239-242).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Wasson Property, Upper Lockport

Interpreted form date range: none.

Comments: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

Peter's Property, Lower Lockport

Date range: 1880 - 1920.

Comments: The range of dates associated with this study area are derived from the existence of a ceramic, yellow ware fragment of a functionally unidentified vessel. Although the calculation of an interpreted form date is not appropriate in this situation due to the curatable properties of ceramic vessels, a broad range of utilization can be implied from the historical existence of yellow earthenware or "yellow ware" forms. One of the largest local archaeological assemblages of yellow earthenware forms known to this researcher is that of excavations carried out at the Woodville or Neville House site near Pittsburgh, Pennsylvania (36AL29). That assemblage includes 829 fragments. The description of those specimens includes:

> The yellow ware and Rockingham ware category dates to the latter part of the nineteenth to early twentieth century, approximately between 1880 and 1920, based upon attributes discernable from the artifacts.
>
> (Fryman, 1985:284)

It is the contention of this analyst that the extant specimens of yellow ware found within the test areas of the Lock Haven-Lockport study locations fall within the same temporal span. Yellow ware was typically utilized as a utilitarian class of vessels.

No other specimens recovered form this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Ja. Englert Property, Lower Lockport

Interpreted form data ranges: 1940 - 1963.
1920 - 1957.
1911 - 1987.

Comments: A colorless glass represented form from shovel test probe no. 1 is embossed along the lower body with, "Duraglas (in script)", while its basal surface exhibits the Owens-Illinois Glass Company trademark. A brief history of the Owens-Illinois Glass Company is presented above (Mellinger Property). The numeric codes, adjacent to the trademark indicate that the represented form was manufactured in Terre Haute, Indiana. The brand of glass container known as "Duraglas" has been produced by the firm since September 4, 1940. The script form of the Duraglas trademark was utilized between 1940 and 1963.

Fragments of an opal glass preserve jar liner embossed with the superimposed "H" and "A" of the Hazel-Atlas Glass Company trademark is embossed on the liner. Brief histories of preserve jar liners (Lork Keeper's House) and the Hazel-Atlas Glass Company (Rechel Property), are presented above.

Shovel test probe no. 4 included a colorless glass container with a crown-top finish, and techno-morphological features that are characteristic of forms blown in automated glass blowing machines. The use of crown top or crown cap finishes on bottles (usually soda bottles) has existed since 1895.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Long Property, Lower Lockport

Date ranges: 1890 - 1920.
1880 - 1987.

Comments: Shovel test probe no. 2 within this study area site revealed three represented ceramic forms. The first of these forms is a yellow ware form of an unidentified flatware configuration. A brief discussion of yellow earthenwares or yellow wares is offered below (Peters Property).

The third probe also contained fragments of two flatware ceramic forms decorated by a transfer technique with an unidentified (too diminutive) pattern or scene. One of the represented transfer wares displays monochrome transfer of a black color while the other involves a red color. Both decorations are applied underglaze. A brief history of "transfer wares" is presented above (Haussener/J. Hanna Property).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Wolfe Property, Lower Lockport

Interpreted form date range: 1869 - 1987.

Comments: Shovel test probe no. 1 yielded a single dark aquamarine body fragment. This is probably representative of an unidentified preserve jar. A brief history of Mason-type glass containers in culinary preservation is offered above (Ryan Property).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Kreamer Property, Lower Lockport

Interpreted form date range: none.

Comments: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

Karchner Property, Lower Lockport

Interpreted form date range: 1911 - 1987.

Comments: A complete and unreconstructed NOXZEMA brand cold cream jar was recovered from shovel test probe no. 1. Techno-morphological characteristics of the representative form include a transparent, cobalt blue matrix, a continuous thread finish, and mold and seam lines indicative of manufacture via an automatic glass blowing machine. NOXZEMA is a cosmetic cleansing cream which is still manufactured at the time of this writing. It is manufactured by the Noxell Corporation of Baltimore, Maryland. Whether this was the location of the manufacturer when the specimen was deposited is unknown.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Interpreted form date ranges: 1869 - 1930.
1915 - 1987.
1904 - 1987.

Comments: The date ranges are derived from represented glass forms including an opal glass preserve jar liner, a "Coca-Cola" bottle, and a glass container demonstrating the manufacturer's trademark. All of these diagnostic artifacts were recovered from shovel test probe no. 4.

The historical development and utilization of opal glass liners represent an integral aspect in the history of food preservation. Many attempts were made to provide for effective preservation of fruits and vegetables through "canning" in the first half of the nineteenth century. Success in this enterprise was accomplished largely in the period between 1850 and 1900. As might be expected, the central problem in securing an airtight seal was irregularity in bottle production itself, a difficulty not resolved satisfactorily until the development of semi-automatic and automatic glass-blowing machines. Although he was not the inventor of the canning jar nor even a manufacturer of bottles, John Landis Mason's name is inextricably linked with the history of food preservation (Munsey 1970:145). He was responsible for the development of the first successful zinc screw-on lid for fruit jars. Many other closure mechanisms were attempted and achieved varying degrees of success, but Mason's mechanism (and the many permutations on his theme) became the chief method of fruit jar closure in the years after 1858.

The capacity to preserve fruits and vegetables was an important step in improving the diet of 19th century America. This importance was heightened in isolated rural areas where access to store goods was not always convenient or even possible. Home canning in the 19th century was a necessity. One problem of Mason's zinc cap, however, was the lack of a suitable barrier between the zinc and the food. Lewis R. Boyd of New York developed an opal glass liner for the zinc cap in 1869. Boyd's cap was thereafter used by several different companies. His caps, therefore, are not restricted to Mason's products (Munsey 1970:146). Without additional comparative efforts it is not possible to date Boyd liner fragments with greater certainty than to suggest a ca. 1869-1900 or later period of manufacture and probable use. Within this time range, it is not unlikely that the Boyd liners were produced closer to the turn of the century or afterward when semi-automatic and automatic glass-blowing machines dramatically increased fruit jar production (McKearin and Wilson 1978:255).

The Parks Canada Glass Glossary defines glass liners as, "part of a more complex closure and is therefore not a closure on its own. . .. Its purpose was to shield the food in fruit jars from the metallic taste imparted by the direct contact with a metal cap. The glass liner, sandwiched between a metal cap and a rubber ring, was held in place by a screw band or solid cap made of metal. The entire unit supposedly made an airtight seal." (Jones and Sullivan 1985:160). The raised portion of the obverse surface of the liner is known as a "boss." Glass liners may have been purchased separately from the jars they covered. Commercial markings, such as those on the examples in the Lock Haven-Lockport study areas, may not necessarily correspond to the maker's marks on a jar for this reason (Jones and Sullivan 1985:161). For further information concerning glass liners and developments in the glass canning industry please refer to Ryan Property.

The second diagnostic form includes a lower body fragment of a "hobble-skirt" Coca-Cola bottle. Coca-Cola was first sold in 1886 from the soda fountain of Jacob's Pharmacy in Atlanta, Georgia. The product was invented in 1885 by Dr. John S. Pemberton of Atlanta. While modifying a proprietary medicine known as "French Wine Coca (Munsey 1970:106). The name "French Wine Coca-Ideal Nerve and Tonic Stimulant" was registered for Pemberton's product which initially contained cocaine. In 1886 Pemberton removed the wine from his formula and added caffeine as well as kola nut extract. This syrup was then bottled in used beer bottles and sold as a headache and hangover cure (Wallechinsky and Wallace 1975:1009). The medicine, which was usually added to water, was mixed with carbonated water and the popular beverage was invented. Although Coca-Cola was first bottled by Joseph A. Beidenharm in 1894. Exclusive bottling rights were sold to two lawyers by the president of the Coca-Cola Company, Asa Chandler, in 1899 (Munsey 1970:105-106).

Until 1985, the recipe for Coca-Cola remained unchanged. In April of 1985 the Coca-Cola Company of Atlanta announced a change in the formula that would make the product sweeter. This move was apparently made to compete with the rival Pepsi-Cola. Until 1985, probably the most guarded ingredient of the original formula was called "7X" and was known only by two or three people in the world (Wallechinsky and Wallace 1975:1009,1349).

In 1915, the Coca-Cola Company designed its uniquely shaped bottle that has been only slightly modified since and is represented by the diminutive fragment recovered from the study area. The unusual shape of the bottle has earned it the nickname of the "hobble skirt" or "Mae West" bottle (Munsey 1970:105-106).

Embossment on the third diagnostic specimen within the study area's assemblage demonstrates the embossed trademark of the glass container's manufacturer. That trademark involves a stylized "G" within a square, and is the trademark of the Glenshaw Glass Company. This manufactory is located three miles north of Pittsburgh in the suburb of Glenshaw, Pennsylvania. This company was formed in 1894 by two Pittsburgh glassblowers, a hotel keeper and a retail merchant. It has been noted for manufacturing beverage bottles, among other forms, since 1904. Glenshaw Glass has continually added glass blowing machines and increased production to a total of 16 machines by 1952 and the establishment of an Orangeburg, N.Y. branch plant in 1960. The company's trademark of a "G" in a square was adopted in 1932 (Toulouse 1971:211-213).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Sanders Property, Upper Lockport

Interpreted form date ranges: 1850 - 1915.
1869 - 1930.
1911 - 1987.
1850 - 1915.
1850 - 1915.

Comments: Shovel test probe no. 1 at this study area location contained fragments of a colorless beer or soda bottle. The represented form is embossed across the front body via a method that includes an upper body plate mold. The embossment indicates that a local Lock Haven company manufactured the original contents of the represented form. The plate mold was introduced to glass container manufacture during the last half of the nineteenth century. It represented a cost effective means for small companys to have containers produced which would unalterably identify the original contents as their own. This was possible since one mold could be used while a plate with the engraved information of the container buyer's could be inserted, usually on the lower shoulder or base portions of the molded container. Meanwhile, large companies had their own individual molds with historical information cut into the mold itself as early as 1810 (Munsey, 1970:40). The development of plate molds was responsible for the standardization of bottle shapes such as milk, beer, and soda bottles.

"A very common term used in discussions of plate molds is 'slug plate.' Mostly because it is redundant this popular name is slowly being replaced by the original and more accurate 'plate mold.'"(Munsey, 1970:40). Newman (1970:74) dates the use of plate molds to a period of 1850 -1915.

Shovel test probe no. 2 includes four representative specimens with diagnostic chronological features. The first representative form is an opal glass liner with, "GENUINE ZINC CAP FOR BALL MASON JARS." embossed around the perimeter of the obverse surface. Brief histories of glass liners (Mellinger Property), and Mason Jars (Ryan Property) are presented above.

A glass container fragment that exhibits a single bead lip and mold or seam lines indicative of automated manufacture is the second diagnostic artifact within probe no. 2. A brief history of automated manufacture in the glass industry is presented in the introduction to that section of the report which pertains to The Green study area.

The third and fourth representative forms referred to, demonstrate embossment styles of their body portions which are typical of plate production. Each of these forms contained beverages manufactured in Lock Haven businesses. The third form is amber in color while the fourth represented form involves a colorless matrix. A discussion of plate molds is offered above.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

<u>Inferred form date ranges</u>: 1859 - 1987.
1900 - 1987.
1911 - 1987.

<u>Comments</u>: Excavated matrix from shovel test pit no. 3 contained fragments of a cornflower blue preserve jar. The extant fragment is embossed with the letters "MASON". A brief history of preserve jars is presented above in the artifact description category of "MULTIPLE FUNCTION CONTAINERS" within that section of the report which pertains to The Green study area.

"MASON" refers to the Mason patent type of fruit or preserve jar. Preserve jars or fruit jars are unique among glass container types because of their manufacture for intentional multiple utilization and their multiple functionality. the technological evolution of preserve jars and more generally, the canning industry was initiated by France's Nicolas (Francois) Appert. Appert, a chef, pickler, preserver, winemaker, brewer, confectioner, and distiller, recognized and developed the processing of foods by sealing them in glass containers and boiling them. His method was published in 18180 and his efforts rewarded when he won a $4000 prize offered by the French government for the development of a method of preserving foods for the military forces. Appert's, 1810 book was originally entitled <u>L'Art de Conserver les Substances Animales et Vegetables</u>. The 1920 English translation of the book is <u>The Art of Preserving</u> (Toulouse 1969:97). Appert built his first canning factory in 1806 and continued to commercially can foods until 1841. One portion of Appert's own description of his canning methods involves the following:

1. To enclose in the bottle or jar the substances that one wishes to preserve;
2. To cork the se different vessels with the greatest care because success depends chiefly on the closing;
3. To submit those substances thus enclosed to the action of boiling water in a water-bath for more or less time according to their nature and the manner that I shall indicate for each kind of food;
4. To remove the bottles from the water-bath at the time prescribed.

(Toulouse 1969:97)

The influence of Appert's book was significant and by the 1829 advertisements by Thomas W. Dyott referred to preserve to preserve containers as "Fruit jars." From that point on the name has become synonymous with the containers which have much more generic functions (Kinsey 1970:145). While glass preserve containers developed, the packaging of foods in metallic cans was initiated in 1810 with Peter Durand's patented method of making tin coated cans. This type of packaging was ultimately more practical for the military, given the amount of transport (Toulouse 1969:98).

The development of the glass fruit jar was impeded by the inadequacies of closures. Originally, Appert had stressed the need for suitable and reliable closures, ". . . for approximately the first fifty years the fruit jar closure was merely a cork sealed with wax. As in all phases of glass container manufacturing, the development of a standardized closing device was hampered by the fact that each vessel made was unique and therefore, a cork was practically the only device flexible enough to fit all containers." (Munsey 1970:145).

> One, and the important, feature of his patent was the vertical inner wall of the groove, and the close-fitting right-angle rim around the metal lid. Its object was to prevent the differences in cooling of the wax and jar contents either from sucking wax into the jar contents or from blowing air through the partly congealed seal.
>
> (Toulouse 1969:89)

Perhaps the most significant development in the glass canning industry and the most common name associated with it was that of John Landis Mason. Although the Mason patent appears on several varieties of fruit jars, his contribution was not a jar but rather the most effective closure. Mason, who grew up as a farm boy near Vineland, N.J. established a tinsmithing and metal-working business in New York City about 1855. He was 23 years old at the time (Toulouse 1969:89). Mason made the first successful zinc screw lid. He did not invent the continuous thread finish that is required to accompany this closure. This type of closure was known as far back as the seventeenth century (Munsey 1970:145). A demand for the lid began circa 1858-1859. Although it offered the advantage of inexpensive manufacture and furthered the standardization of jar types begun by Arthur's invention (jars and lids were sold separately until 1890), it was not extremely popular. The disadvantage of the Mason lid was that it exposed food to zinc. This led to the next major development in glass canning technology:

> Lewis R. Boyd of New York City, saved the Mason lid in 1869 by inventing an opal glass liner (opal because it would hide any seepage and look clean). Boyd's invention was used by several other companies, so collectors can find them on several brands of jars of that period.
>
> (Munsey 1970:146)

The Boyd liner prevented contact of the food and the zinc cap. Another result of Lewis Boyd's patented invention was the development of a number of wrenches and other tools for tightening and removing caps easier, and straightening the edges of the zinc cap if deformed from use (Toulouse 1969:92).

The reader is referred to Toulouse's (1969:[illegible]) Bottle Glossary, as a reference to all the possible applications and interpretations of finishes.

A second glass container, recovered from this [illegible] shovel probe, includes automatic glass blowing machine manufacture characteristics, a continuous thread finish and plastic screw-on cap. Embossed down opposite sides of the represented form's body is "[illegible]." A brief history of automated manufacture [illegible] is essential in the introduction of that section of the study which pertains to The Green study area. The use of liquid and combustible forms of incense became quite popular during the 1960s and 1970s in America. This, and the use of a plastic screw-on closure implies a very recent form manufacture date.

A second colorless glass bottle was located within the surveyed matrix of shovel test probe no. 2. The extant portion of the represented form includes a packer style lip, and mold or seam lines indicative of automated production (1911 - present).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Hibdon/Hobbs Property

Interpreted form date range: none.

Summary: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

Harris Property

Interpreted form date range: 1907 - 1925.

Comments: A single fragment of a Carnival glass vessel was recovered from the fill of shovel test probe no. 2, and is the base of the date range associated with this study area. Perhaps once the most maligned of glass articles, Carnival glass is now one of the most sought after types of glass among collectors. What is now referred to as "Carnival glass" had its origins from the development of decorative arts among glassmakers at the turn of the century. The major contribution of these artists was the addition of iridescence to the surface decoration of glass articles. The iridescence was achieved by spraying certain acids and salt solutions on either clear or colored glass and then reheating the finished piece. Initially much of this art was expensive, being comprised of mouth and handblown forms. However, the iridescence was then applied to ornate, late Victorian patterns in addition to Art Nouveau styles. It began to lack the innovation necessary to make it part of the decorative arts scene. The combination merged the old and new of glass production by combining the techniques of mass-production with handshaping and artsy iridescence. The appreciation of the iridescent glass forms was short lived. "By 1925, the glass began to look old-fashioned and those firms that still produced it had long since amortized their investment and made a good profit from the molds. It became available at even lower prices to game concessionaires, who could purchase it by the barrel for a dollar or two. Since the iridescent glass looked like so much value for so little money it was a perfect giveaway and its frequent appearance at places of amusement was what finally gave carnival glass its name." (Klamkin 1976:7). Klamkin's comments further illustrate the falling from grace which Carnival glass suffered yet the socio-economic reflections it offers:

> In short, no one especially liked this mass-produced iridescent glassware except the millions of people who paid hard-earned pennies for it and proudly displayed it in the dismal turn-of-the-century parlors, dining rooms, and kitchens in the average houses of America.
>
> The glass was produced by the carload and sold by the barrel and eventually so little was thought of it that it was sold in huge quantities as prizes for games of skill or chance at circuses, carnivals, and amusement parks. It was given away as premiums during store promotions and was produced in special molds to be sold as souvenirs or given away as commemorative items.
>
> . . . the iridescent glass represents the story of the lives and tastes of average Americans living in the beginning of the twentieth century.
>
> (Klamkin 1976:4,5)

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

L. Williams Property

Interpreted form date range: 1869 - 1930.

Comments: One fragment of an opaque, white "opal" glass liner was encountered during the excavation of shovel test probe no. 2 at this site. The represented form is characteristically concave-convex in cross-section along a vertical axis while it is circular when viewed in plan. A brief history of preserve jar liners and preserve jars is presented above (Lock Keeper's House), (Ryan Property).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Barzona Property, Upper Lockport

Interpreted form date range: 1869 - 1930.

Comments: With the exception of basically undiagnostic amber and aquamarine colored container glass fragments, (The attainment of such colors are described above), the association of dates associated with represented forms from this study area is based on a represented opal glass preserve jar liner. A brief history of liners is presented below (Lock Keeper's House).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Swartz-Myers Property, Upper Lockport

Interpreted form date range: none.

Comments: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

A. Crissman Property

Interpreted form date range: 1911 - 1987

Comments: Although the glass specimens present in this study area do not include specific historical/diagnostic information, their techno-morphological characteristics indicate that the represented forms where manufactured via automated glass blowing machines. A brief history of the automated manufacture of glass containers is presented in the introduction of that section of this report which pertains to The Green study area.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Weaver Property, Upper Lockport

Interpreted form date ranges: 1930 - 1987.
1930 - 1987.
1930 - 1987.
1932 - 1987.

Comments: Shovel test probe no. 2 included a glass bottle manufactured by the Owens-Illinois Glass Company to contain "LISTERINE." The Owens-Illinois trademark on the represented form indicates that the container was manufactured in Bridgeton, N.J. in mold no. 14. The Bridgeton plant was formed in 1930 and apparently continues to operate. A brief history of the Owens-Illinois Company is presented above (Mellinger Property). LISTERINE is an antiseptic mouthwash which continues to be manufactured at the time of this writing. It is manufactured by the Warner Lambert Company of Morris Plains, New Jersey. It is not known whether this was the location of manufacture when the represented form was in use.

Shovel test probe no. 2 also contained a perfume bottle of automated manufacture in an art nouveau style that implies a post-1930 date of design and manufacture. A brief history of general toiletry and cologne bottles is provided in that section of the report which pertains to The Green.

The third test probe also contained A "LISTERINE" bottle manufactured in the Owens-Illinois, Bridgeton, N.J. plant. This represented form was manufactured in mold no. 7.

A second represented form recovered from the third test probe is a form which exhibits a blob top finish and the embossment, "This Bottle Registered Not to be Sold." Newman (1970:72), notes that embossment related to federal regulation of container manufacture such as "FEDERAL LAW FORBIDS. . ." have been utilized since 1932.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

T. Probst Property, Upper Lockport

Interpreted form date range: none.

Comments: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

Eisenhower Property, Upper Lockport

Interpreted form date range: none.

Comments: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

Richard #2 Property Upper Lockport

Interpreted form date range: none.

Comments: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

Wanker Property, Upper Lockport

Interpreted form date range: 1880 - 1913.

Comments: Shovel test probe no. 1 included fragments of a colorless glass bottle that demonstrates a prima oval horizontal cross-section, and applied and tooled prescription style finish and an elongated bottom plate indentation. The dating key provided by Neuman (1970:73-75) suggests that the represented form's mode of aperture application and colorless matrix would be datable to 1880 - 1913.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Kreamer Property, Upper Lockport

Interpreted form date range: 1869 - 1987.

Comments: The sole diagnostic specimen, in regard to interpreted form date calculation, is a fragment of a cornflower blue preserve jar, which exhibits a continues thread finish. The recovered specimen was located within shovel test probe no. 2. The configuration and color of the extant segment is similar to preserve jars that are generically referred to as "Mason Jars." Although the represented form may not be an actual Mason Jar, it is probably a preserve jar which typically evolved from the Mason patent and therefore the date range associated with Mason patent containers offers an absolute, early mark for the possible date of the represented container. A brief history of Mason and Mason-type preserve jars is presented below (Ryan Property).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and.or historical information toward the accurate calculation of interpreted form dates.

Riggle/Rote Property, Upper Lockport

Interpreted form date ranges: 1911 - 1987.
1932 - 1987.

Comments: The second shovel test probe initiated at this study area revealed amber colored glass container fragments which exhibit techno-morphological characteristics typical of automatic blown forms. Both the development of automated processes in the production of container glass and the colorization of glass matrices are briefly discussed in the introduction of that section of the report which pertains to The Green study area.

The second probe also uncovered a specimen embossed with the Glenshaw Glass Company's trademark that was adopted in 1932. A brief history of the Glenshaw Glass Company is presented above (Lock Keeper's House).

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Haussener/J. Hanna Property

Date range: 1890 - 1987.

Comments: Although a blue plastic spoon with "Tastee-freez" molded along the handle portion was recovered from test probe no. 2 of the study area, ceramic specimens contained within shovel test probes no. 1, 2, and 3 indicate less recent depositions of artifacts. Generation of dates via general historical data may be of some use, if the curatible properties of ceramic vessels is cautiously observed.

Shovel test probe no. 1 included a fragment of a soft white paste flatware form with an unidentified blue transfer pattern, while black and brown transfer pattern wares are identified in the second and third test probes, respectively. All of the decoration on ceramic specimens has been applied underglaze. "Transfer printing is a process by which a design from a copper template is transferred to bisque pottery by using a thin, inked waxy paper which bears the desired design. Although blue transfer prints were by far the most popular, a great number of other colors, such as the brown example. . .were common on the tables of American homes and could be found on plates, cups, platters and other ceramic forms." (Hochrein and Carlisle, 1983:76).

The diminutive nature of the extant specimen prevents a specific interpretation of the decorative pattern. The sizable assemblage of soft-white paste artifacts in the historic period artifact assemblage of 36AL29 includes numerous examples of monochrome, and blue underglaze transfer patterns. Makers marks associated with almost every pattern post date 1890 in that assemblage (Casselberry, 1985:299-392). It is the contention of this analyst that the specimen of transfer wares within the Lockport-Lock Haven study area also post date 1890.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Stem Farm Property

Interpreted form date range: 1901 - 1987.

Comments: A complete, albeit severely pitted, glass marble was recovered from the surface of the site. The specimen demonstrates a pale blue matrix with indiscriminately located dark, opaque, blue ribbons. The evidence for the evolution of toy marbles since prehistoric times includes artifacts from mound building populations in prehistoric America, references to the fifteenth century play of Venetian boys, and even the mention of marbles by Daniel DeFoe in Robinson Crusoe (1720) (Baumann 1970: 7-8). The earliest marbles were crudely manufactured from lithic materials. The manufacture of ceramic forms was perfected during the nineteenth century.

The first documented evidence of glass marble production was found for the present day east German area of Thuringen, and specifically small glass manufactories in towns such as Lauscha and Sonneberg (Baumann 1970: 35). The presence of glass marble manufactories in the United States are noted for the later half of the nineteenth centuries. Companies which were known to manufacture the earliest American types probably with imported raw materials until World War I, included the Iowa City Flint Glass Manufacturing Company (1880-1882, 1897-1902), the Navarre Glass Marble Company, and possibly the Boston and Sandwich Glass Company (1825-1888) (Baumann 1970: 37-38). Meanwhile, in Germany, the free blown production of marbles continued until approximately the end of World War I. The freeblown production of marbles was virtually nonexistent by 1920 (Baumann 1970: 35).

The manufacture of glass marbles by automated machine was roughly contemporaneous with the development of the Owens Automatic Glass Blowing Machine. The first marble-making machine was operating in Ohio by 1901 and by 1905, early machine made types of marbles were competing for the market of handmade varieties (Randall 1971: 105).

None of the glass marbles represented in the Lock Haven-Lockport sites artifact assemblages were manufactured by hand. The manual manufacture of marbles leaves techno-morphological markings which are not extant on the represented forms. The marks would have occurred since this method incorporates a tool known as "marble scissors" or "Marbelschere". This device was invented in 1846 by a German glass worker and was used to handform the spherical glass toys from multicolored glass canes or rods in the following manner:

> These scissors were hand crafted and consisted mainly of a strip of iron formed into the shape of a 'U' and resembling a pair of tongs. On the right hand end was a round bottom cup and on the left was a knifelike blade (sic) . . . This allowed cups of different sizes to be interchanged with each other on the same scissors. Light pressure in the middle of the scissors caused the two ends to come together, the lip of the cup forming the other half of the scissors with the blade.
>
> For the forming process, the hot end of a glass bar would be pressed into the cup with enough pressure to round the end of the bar in the bowl. Then the two ends of the scissors were pressed together and the tool was twisted slowly until the blade had completely separated the soft pieces of glass from the glass cane. After the balls became a little harder, they were placed into a churn shaped wooden barrel. This was kept in continuous rotation by the marble maker and helped to shape the glass pieces into spheres. For the final cooling, the marbles were picked up with an iron spoon and placed in an annealing oven in lofts of ten to twenty to cool.
>
> (Baumann 1970: 36)

The final step in the hand production of marbles involved polishing by refining, acid dipping, or tumbling (Baumann 1970: 36). The abraded areas on form nos. 2, 3, and 4, described above are the result of the unfinished marbles separation from a glass cane and the incomplete polishing of the form.

No other specimens recovered from this study area [illegible] sufficient techno-morphological and/or historical infoxmation toward the accurate calculation of interpreted form dates.

Spangler-Hanger Property

Interpreted form date range: none.

Comments: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

Probst Farm Property

Interpreted form date range: none.

Comments: No temporally diagnostic artifacts are present on which to calculate interpreted form dates.

Packer Farm Property

Interpreted form date range: none.

Comments: No temporally diagnostic artifacts are present on which to accurately calculate interpreted form dates.

Rupert/Connelley Prop./Str. #1

Interpreted form date ranges: 1880 - 1913.
1911 - 1987.

Comments: The second shovel test probe conducted in the study area resulted in the recovery of a colorless glass container neck-finish segment demonstrating a two part, ball neck design and molded patent style lip. The lack of a seam line within ¼ inch of the rim's edge may be an indication that the represented form was manufactured by a semi-automatic glass blowing machine. This mode of production is typically assigned to a chronological period of 1880 -1913 (Newman 1970:72).

A second form recovered from the same test probe is represented by fragments which exhibit features characteristic of bottles blown via automatic glass blowing machines (1911 - present). A brief history of the development of automatic glass blowing machines is presented in the introduction to that section of the report which pertains to The Green study area.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward the accurate calculation of interpreted form dates.

Chapman Prop./ Str. #11

Date ranges: 1869 - 1987.
1880 - 1987.
1880 - 1987.

Comments: The fourth shovel test probe at this site contained a single dark aquamarine preserve jar fragment. A brief history of glass preserve containers is provided below (Ryan Property).

Diagnostic ceramic specimens represent one soft white paste, flatware form with what includes an applied decoration of handpainted blue paint brushed toward the edge in what may be an imitation of shell - edged style of pearl ware (Eddins, 1985:248). It is the impression of this analyst that the represented form dates post-1880 based on the association of similar forms in the large Neville House (36AL29) assemblage.

The third chronologically diagnostic form is represented from a fragment of an unidentified, soft-white paste vessel. The exterior surface of the extant specimen is decorated with a speckled pattern which is applied with a sponge. This method of decoration has resulted in the reference of this type of ceramic vessel via the term "sponge ware." This form of decoration is applied underglaze and is also interpreted as post-dating 1880.

No other specimens recovered from this study area location demonstrate sufficient techno-morphological and/or historical information toward them accurate calculation of interpreted form dates.

CONCLUSIONS

The analyses of non-metallic, Historic Period artifacts from 65 locations within the Lock Haven - Lockport study area has revealed an assemblage typical of the primarily recent, transient deposition which is often encountered during phase I archaeological reconnaissance surveys. There are, however, three study area locations which indicate potentially antiquated deposits.

The reader is cautioned against the possibility of "over interpreting" the temporal data presented by the extant specimens within each site. The individual site assemblages are extremely small with the exception of The Green's. Although the date ranges represented above are valid, they should be considered in relation to all components of the project's analytical research.

Figure no. 2 graphically presents the range of dates associated with each study area location. The cursory examination of the figure makes obvious that the bulk of associated dates fall within the twentieth century. this observation is further supported by the calculation of median dates for each associated range and the formation of a modal distribution of those median dates. The primary mode in such a distribution is comprised of the median date of 1950. Three properties, The Green, 123 Mill Street, and The Hawley Steam Sawmill Properties maintain associated date ranges of relatively greater antiquity in comparison to other study area locations.

An interpretation of site utilization via the association of artifact functionality is again, impeded by the low frequency of recovered specimens. The

study area location, The Green, is the only site which maintains an artifact assemblage of sufficient volume to suggest possible modes of site utilization. The non-specific, diverse nature of interpreted functionality within the artifact assemblage supports the documented utilization of the locale as a loading area and public area. All other assemblages of non-metallic Historic Period artifacts in the survey area are of insufficient size to base interpretations of site utilization. Instead, the extant artifacts are typical of the recent archaeological materials deposited at sites in a casual, random manner by transient individuals or groups. A second interpretation includes that of the extant assemblage being representative of recent midden formation. Again the lack of specificity is directly related to the small artifact sample size.

Consideration of potential Historic Period trade patterns as reflected by the extant assemblage are again unwarranted given the small, non-specific nature of the assemblages. It may be noted that almost all of the representative glass material which demonstrated historical information was manufactured in and/or once contained products produced within western Pennsylvania.

Based on the non-metallic Historic Period artifact assemblage, it is the opinion of this analyst that of the individual study area locations tested by archaeologists in the Lock Haven-Lockport area, the only loci which may yield additional archaeological material ascribable to the nineteenth century of sufficient quantity to be culturally significant, **The Green, 123 Mill Street**, and **The Hawley Steam Sawmill** study areas.

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APPENDIX A

(Artifact Frequency Distribution Table)

Test Area: Mini-Mart Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	SPT 3	TOTAL	CLASS TOTAL
GLASS					
Container Glass	- ( )	3 (2)	1 (1)	4 (3)	
Flat Glass	5 (2)	6 (2)	- ( )	11 (4)	
Pressed Glass	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Glass	1 (1)	1 (1)	- ( )	2 (2)	17 (9)
CERAMIC					
Holloware/Flatware	2 (2)	1 (1)	- ( )	3 (3)	
Architectural Ceramic	- ( )	2 (2)	- ( )	2 (2)	
Miscelleneous Ceramic	1 (1)	1 (1)	- ( )	2 (2)	7 (7)
SYNTHETICS					
Container	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	1 (1)	- ( )	- ( )	1 (1)	1 (1)
WOOD					
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE					
Worked Stone	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	0 (0)
SHELL					
Worked Shell	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	0 (0)
BONE					
Worked Bone	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	4 (1)	- ( )	4 (1)	4 (1)
MISCELLANEOUS					
Brick/Mortar	- ( )	1 (1)	- ( )	1 (1)	
Fabric	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	1 (1)
TOTAL	10 (7)	19 (10)	1 (1)	30 (19)	

Test Area: Rose Property, 101 Water Street

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 7	TOTAL	CLASS TOTAL
GLASS			
Container Glass	- ( )	- ( )	
Flat Glass	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	0 (0)
CERAMIC			
Hollowware/Flatware	2 (2)	2 (2)	
Architectural Ceramic	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	2 (2)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	0 (0)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL			
	2 (2)	2 (2)	

Test Area: Holt Property, 47 Water Street

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 6	STP 8	TOTAL	CLASS TOTAL
GLASS				
Container Glass	- ( )	3 (1)	3 (1)	
Flat Glass	- ( )	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	3 (1)
CERAMIC				
Holloware/Flatware	2 (1)	- ( )	2 (1)	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	- ( )	2 (1)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	0 (0)
WOOD				
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	0 (0)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	- ( )	0 (0)
MISCELLANEOUS				
Brick/Mortar	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	0 (0)
TOTAL	2 (1)	3 (1)	5 (2)	

Test Area: Lock Haven U. President's Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 10	STP 11	SPT 12	TOTAL	CLASS TOTAL
GLASS						
Container Glass	- (-)	1 (1)	3 (2)	3 (2)	7 (5)	
Flat Glass	3 (1)	1 (1)	2 (1)	2 (1)	8 (4)	
Pressed Glass	- (-)	- (-)	- (-)	- (-)	- (-)	
Miscellaneous Glass	- ( )	1 ( )	- ( )	- ( )	1 (1)	16(10)
CERAMIC						
Hollowware/Flatware	2 (2)	- (-)	3 (2)	- (-)	5 (4)	
Architectural Ceramic	- (-)	- (-)	- (-)	- (-)	- (-)	
Miscellaneous Ceramic	- (-)	- (-)	- (-)	- (-)	- (-)	5 (4)
SYNTHETICS						
Container	- (-)	- (-)	- (-)	- (-)	- (-)	
Miscellaneous Plastic/Rubber	- (-)	- (-)	- (-)	- (-)	- (-)	0 (0)
WOOD						
Worked (Diagnostic) Wood	- (-)	- (-)	- (-)	- (-)	- (-)	
Unworked Wood	1 (1)	1 (1)	1 (1)	- (-)	3 (3)	3 (3)
STONE						
Worked Stone	- (-)	- (-)	- (-)	- (-)	- (-)	
Unworked Stone/Slag	- (-)	- (-)	- (-)	1 (1)	1 (1)	1 (1)
SHELL						
Worked Shell	- (-)	- (-)	- (-)	- (-)	- (-)	
Unworked Shell	- (-)	- (-)	- (-)	- (-)	- (-)	0 (0)
BONE						
Worked Bone	- (-)	- (-)	- (-)	- (-)	- (-)	
Unworked Bone	- (-)	- (-)	1 (1)	- (-)	1 (1)	1 (1)
MISCELLANEOUS						
Brick/Mortar	3 (1)	- (-)	- (-)	- (-)	3 (1)	
Fabric	- ( )	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	9 (1)	- ( )	9 (1)	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	- ( )	12 (2)
TOTAL	9 (5)	4 (4)	19 (7)	6 (4)	38 (21)	

Test Area: Armstrong Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 16	TOTAL	CLASS TOTAL
GLASS			
Container Glass	2 (1)	2 (1)	
Flat Glass	5 (2)	5 (2)	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	3 (1)	3 (1)	10 (4)
CERAMIC			
Hollowware/Flatware	2 (1)	2 (1)	
Architectural Ceramic	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	2 (1)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	3 (1)	3 (1)	3 (1)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	5 (1)	5 (1)	5 (1)
MISCELLANEOUS			
Brick/Mortar	2 (1)	2 (1)	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	2 (1)
TOTAL	22 (8)	22 (8)	

Test Area: 112 Mill Street

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	TOTAL	CLASS TOTAL
GLASS			
Container Glass	1 (1)	1 (1)	
Flat Glass	2 (2)	2 (2)	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	3 (3)
CERAMIC			
Holloware/Flatware	1 (1)	1 (1)	
Architectural Ceramic	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	1 (1)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	4 (1)	4 (1)	4 (1)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	2 (1)	2 (1)	2 (1)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	2 (1)	2 (1)	2 (1)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL	12 (7)	12 (7)	

Test Area: 115 Mill Street

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	TOTAL	CLASS TOTAL
GLASS			
Container Glass	- ( )	- ( )	
Flat Glass	1 (1)	1 (1)	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	1 (1)
CERAMIC			
Holloware/Flatware	5 (4)	5 (4)	
Architectural Ceramic	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	5 (4)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	1 (1)	1 (1)	1 (1)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	2 (1)	2 (1)	2 (1)
MISCELLANEOUS			
Brick/Mortar	2 (2)	2 (2)	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	2 (2)
TOTAL			
	11 (9)	11 (9)	

Test Area: 116-118 Mill Street

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	TOTAL	CLASS TOTAL
GLASS				
Container Glass	4 (1)	5 (5)	9 (6)	
Flat Glass	4 (1)	24 (1)	28 (2)	
Pressed Glass	- ( )	- ( )	- ( )	
Miscellaneous Glass	1 (1)	- ( )	1 (1)	38 (9)
CERAMIC				
Hollowware/Flatware	2 (1)	5 (4)	7 (5)	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	1 (1)	1 (1)	8 (6)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	1 (1)	1 (1)	1 (1)
WOOD				
Worked (Diagnostic) Wood	- ( )	1 (1)	1 (1)	
Unworked Wood	- ( )	- ( )	- ( )	1 (1)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	1 (1)	1 (1)	1 (1)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	1 (1)	4 (1)	5 (2)	5 (2)
MISCELLANEOUS				
Brick/Mortar	1 (1)	2 (1)	3 (2)	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	3 (2)
TOTAL	13 (6)	44 (16)	57 (22)	

Test Area: 120 Mill Street

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	TOTAL	CLASS TOTAL
GLASS			
Container Glass	1 (1)	1 (1)	
Flat Glass	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	1 (1)
CERAMIC			
Holloware/Flatware	1 (1)	1 (1)	
Architectural Ceramic	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	1 (1)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	0 (0)
MISCELLANEOUS			
Brick/Mortar	1 (1)	1 (1)	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	1 (1)
TOTAL			
	3 (3)	3 (3)	

Test Area: 121 Mill Street

Primary Function Classification: (Minimum number of individual forms)	Sub-area: STP 1	TOTAL	CLASS TOTAL
GLASS			
Container Glass	3 (1)	3 (1)	
Flat Glass	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	3 (1)
CERAMIC			
Hollowware/Flatware	1 (1)	1 (1)	
Architectural Ceramic	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	1 (1)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	1 (1)	1 (1)	1 (1)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	0 (0)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL	5 (3)	5 (3)	

Test Area: 123 Mill Street

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	TOTAL	CLASS TOTAL
GLASS				
Container Glass	4 (2)	1 (1)	5 (3)	
Flat Glass	6 (1)	1 (1)	7 (2)	
Pressed Glass	- ( )	- ( )	- ( )	
Miscellaneous Glass	2 (?)	1 (1)	3 (1)	15 (6)
CERAMIC				
Holloware/Flatware	1 (1)	3 (3)	4 (4)	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	1 (1)	1 (1)	5 (5)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	0 (0)
WOOD				
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	0 (0)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	3 (1)	- ( )	3 (1)	3 (1)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	- ( )	0 (0)
MISCELLANEOUS				
Brick/Mortar	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	0 (0)
TOTAL				
	16 (5)	7 (7)	23 (12)	

Test Area: City Owned Lot/Hawley Steam Sawmill Site

Primary Function Classification: Sub-areas: (Minimum number of individual forms)	TRENCH 1	TOTAL	CLASS TOTAL
GLASS			
Container Glass	7 (5)	7 (5)	
Flat Glass	2 (2)	2 (2)	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	9 (7)
CERAMIC			
Hollowware/Flatware	4 (3)	4 (3)	
Architectural Ceramic	- ( )	- ( )	
Miscellaneous Ceramic	1 (1)	1 (1)	5 (4)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	1 (1)	1 (1)	1 (1)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	1 (1)	1 (1)	1 (1)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	1 (1)	1 (1)	
Nut/Seed	- ( )	- ( )	1 (1)
TOTAL			
	17 (14)	17 (14)	

Test Area: Rapmitco, Inc. Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 13	STP 14	TOTAL	CLASS TOTAL
GLASS				
Container Glass	5 (3)	- ( )	5 (3)	
Flat Glass	6 (2)	8 (2)	14 (4)	
Pressed Glass	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	19 (7)
CERAMIC				
Holloware/Flatware	2 (1)	9 (5)	11 (6)	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	1 (1)	1 (1)	12 (7)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	0 (0)
WOOD				
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	0 (0)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	- ( )	0 (0)
MISCELLANEOUS				
Brick/Mortar	2 (1)	- ( )	2 (1)	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	2 (1)
TOTAL				
	15 (7)	18 (8)	33 (15)	

Test Area: The Green Property

Primary Function Classification: (Minimum no. of individual forms)	Subarea:	BHT-TU 1	STP 1	STP2	STP3	STP4	STP5	TOTAL	CLASS TOTAL
GLASS									
Container Glass		42	1	2				45	
Flat Glass		73						73	
Pressed Glass		13						13	
Miscellaneous Glass		13			1	1		15	
CERAMICS									
Hollowware/Flatware		22	1	2	2		1	28	
Architectural Ceramics									
Miscellaneous Ceramics		4						4	
SYNTHETICS									
Container									
Misc. Plastic/Rubber									
WOOD									
Worked (Diagnostic) Wood									
Unworked Wood									
STONE									
Worked Stone									
Unworked Stone									
SHELL									
Worked Shell									
Unworked Shell		19						19	
BONE									
Worked Bone		1						1	
Unworked (Food) Bone		11						11	
MISCELLANEOUS									
Brick/Mortar		1						1	
Fabric									
Leather									
Nut/Seed									
TOTALS		199	2	4	3	1	1	210	

Test Area: Stamm Property/854 E. Main St.

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 5	STP 6	TOTAL	CLASS TOTAL
GLASS				
Container Glass	1 (1)	2 (2)	3 (3)	
Flat Glass	- ( )	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	3 (3)
CERAMIC				
Hollowware/Flatware	1 (1)	- ( )	1 (1)	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	- ( )	1 (1)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	0 (0)
WOOD				
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	0 (0)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	- ( )	0 (0)
MISCELLANEOUS				
Brick/Mortar	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	0 (0)
TOTAL	2 (2)	2 (2)	4 (4)	

Test Area: Santonica Property/852 E. Main St.

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 8	STP 9	TOTAL	CLASS TOTAL
GLASS				
Container Glass	- ( )	- ( )	- ( )	
Flat Glass	- ( )	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	0 (0)
CERAMIC				
Holloware/Flatware	3 (2)	- ( )	3 (2)	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	- ( )	3 (2)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	0 (0)
WOOD				
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	0 (0)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	2 (1)	1 (1)	3 (2)	3 (2)
MISCELLANEOUS				
Brick/Mortar	1 (1)	- ( )	1 (1)	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	1 (1)
TOTAL				
	6 (4)	1 (1)	7 (5)	

Test Area: Bassinger Prop./836 E. Main St.

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 19	TOTAL	CLASS TOTAL
GLASS			
Container Glass	3 (1)	3 (1)	
Flat Glass	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	3 (1)
CERAMIC			
Holloware/Flatware	1 (1)	1 (1)	
Architectural Ceramic	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	1 (1)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	1 (1)	1 (1)	1 (1)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL			
	5 (3)	5 (3)	

Test Area: Baltimore Life Ins. Co. Prop./776 E. Main St.

Primary Function Classification: Sub-area: STP 23

(Minimum number of individual forms)

	STP 23	TOTAL	CLASS TOTAL
GLASS			
Container Glass	1 (1)	1 (1)	
Flat Glass	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	5 (1)	5 (1)	6 (2)
CERAMIC			
Holloware/Flatware	4 (2)	4 (2)	
Architectural Ceramic	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	4 (2)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	1 (1)	1 (1)	1 (1)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	0 (0)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL	11 (5)	11 (5)	

Test Area: Kuntz Prop./772 E. Main St.

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 26	TOTAL	CLASS TOTAL
GLASS			
Container Glass	1 (1)	1 (1)	
Flat Glass	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	1 (1)
CERAMIC			
Holloware/Flatware	- ( )	- ( )	
Architectural Ceramic	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	0 (0)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	1 (1)	1 (1)	
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL			
	2 (2)	2 (2)	

Test Area: Yost Prop./215 Race St.

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 36	STP 37	STP 38	TOTAL	CLASS TOTAL
GLASS					
Container Glass	1 (1)	3 (1)	- ( )	4 (2)	
Flat Glass	- ( )	5 (3)	1 (1)	6 (4)	
Pressed Glass	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Glass	1 (1)	2 (1)	- ( )	3 (2)	13 (8)
CERAMIC					
Hollowware/Flatware	- ( )	- ( )	1 (1)	1 (1)	
Architectural Ceramic	- ( )	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	- ( )	- ( )	1 (1)
SYNTHETICS					
Container	1 (1)	- ( )	- ( )	1 (1)	
Miscellaneous Plastic/Rubber	1 (1)	- ( )	- ( )	1 (1)	2 (2)
WOOD					
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE					
Worked Stone	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	0 (0)
SHELL					
Worked Shell	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	0 (0)
BONE					
Worked Bone	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	1 (1)	- ( )	1 (1)	1 (1)
MISCELLANEOUS					
Brick/Mortar	- ( )	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	1 (1)	2 (2)	3 (3)	3 (3)
TOTAL	4 (4)	12 (7)	4 (4)	20 (4)	

Test Area: Clark Prop./784 E. Church St.

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 59	STP 60	TOTAL	CLASS TOTAL
GLASS				
Container Glass	2 (2)	4 (3)	6 (5)	
Flat Glass	- ( )	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	6 (5)
CERAMIC				
Hollowware/Flatware	- ( )	- ( )	- ( )	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	- ( )	0 (0)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	0 (0)
WOOD				
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	0 (0)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	1 (1)	1 (1)	1 (1)
MISCELLANEOUS				
Brick/Mortar	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	0 (0)
TOTAL				
	2 (2)	5 (4)	7 (6)	

Test Area: Hendricks Prop./775 E. Church St.

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP S1	STP S2	STP S3	TOTAL	CLASS TOTAL
GLASS					
Container Glass	1 (1)	2 (2)	6 (2)	9 (5)	
Flat Glass	1 (1)	1 (1)	4 (2)	6 (4)	
Pressed Glass	- ( )	- ( )	1 (1)	1 (1)	
Miscellaneous Glass	- ( )	- ( )	- ( )	- ( )	16 (10)
CERAMIC					
Holloware/Flatware	1 (1)	1 (1)	2 (1)	4 (3)	
Architectural Ceramic	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	- ( )	- ( )	4 (3)
SYNTHETICS					
Container	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	- ( )	0 (0)
WOOD					
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE					
Worked Stone	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	0 (0)
SHELL					
Worked Shell	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	0 (0)
BONE					
Worked Bone	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	1 (1)	1 (1)	1 (1)
MISCELLANEOUS					
Brick/Mortar	- ( )	1 (1)	- ( )	1 (1)	
Fabric	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	1 (1)
TOTAL					
	3 (3)	5 (5)	14 (7)	22 (15)	

Test Area: J. Caruso Property/770 E. Church St.

Primary Function Classification: (Minimum number of individual forms)	Sub-area: STP 66	TOTAL	CLASS TOTAL
GLASS			
Container Glass	- ( )	- ( )	
Flat Glass	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	0 (0)
CERAMIC			
Holloware/Flatware	- ( )	- ( )	
Architectural Ceramic	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	0 (0)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	1 (1)	1 (1)	1 (1)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL			
	1 (1)	1 (1)	

Test Area: Selti Property/760 E. Church St.

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 71	TOTAL	CLASS TOTAL
GLASS			
Container Glass	1 (1)	1 (1)	
Flat Glass	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	1 (1)
CERAMIC			
Holloware/Flatware	- ( )	- ( )	
Architectural Ceramic	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	0 (0)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	0 (0)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL			
	1 (1)	1 (1)	

Test Area: Hunter Prop./752 E. Church St.

Primary Function Classification: (Minimum number of individual forms)	Sub-area: STP 73	TOTAL	CLASS TOTAL
GLASS			
Container Glass	5 (4)	5 (4)	
Flat Glass	1 (1)	1 (1)	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	6 (5)
CERAMIC			
Hollovare/Flatware	1 (1)	1 (1)	
Architectural Ceramic	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	1 (1)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	0 (0)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL			
	7 (6)	7 (6)	

Test Area: A. Caruso Prop./750 E. Church St.

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 79	STP 80	TOTAL	CLASS TOTAL
GLASS				
Container Glass	3 (?)	35 (4)	38 (4)	
Flat Glass	- ( )	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	38 (5)
CERAMIC				
Hollowware/Flatware	- ( )	3 (1)	3 (1)	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	- ( )	3 (1)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	0 (0)
WOOD				
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	0 (0)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	1 (1)	- ( )	1 (1)	1 (1)
MISCELLANEOUS				
Brick/Mortar	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	0 (0)
TOTAL				
	4 (1)	39 (6)	43 (7)	

Test Area: Castanea Fire Co. Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 3	TOTAL	CLASS TOTAL
GLASS				
Container Glass	1 (1)	- (-)	1 (1)	
Flat Glass	2 (2)	- (-)	2 (2)	
Pressed Glass	- (-)	- (-)	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	3 (3)
CERAMIC				
Holloware/Flatware	- ( )	1 (1)	- ( )	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	- ( )	1 (1)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	0 (0)
WOOD				
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	0 (0)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	- ( )	0 (0)
MISCELLANEOUS				
Brick/Mortar	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	0 (0)
TOTAL	4 (4)	1 (1)	4 (4)	

Hammermill Paper Co. Property Reach:
Test Area: Powerlines to Concrete Watertank

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 4	STP 5	TOTAL	CLASS TOTAL
GLASS					
Container Glass	5 (3)	4 (1)	- ( )	9 (4)	
Flat Glass	- ( )	- ( )	1 (1)	1 (1)	
Pressed Glass	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	1 (1)	1 (1)	11 (6)
CERAMIC					
Hollowware/Flatware	- ( )	- ( )	- ( )	- ( )	
Architectural Ceramic	- ( )	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	- ( )	- ( )	0 (0)
SYNTHETICS					
Container	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	- ( )	0 (0)
WOOD					
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE					
Worked Stone	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	0 (0)
SHELL					
Worked Shell	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	0 (0)
BONE					
Worked Bone	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	- ( )	- ( )	0 (0)
MISCELLANEOUS					
Brick/Mortar	- ( )	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	0 (0)
TOTAL					
	5 (3)	4 (1)	2 (2)	11 (6)	

Test Area: Western Bank Edge Locality/Jay St. to Mellingers Prop.

Primary Function Classification: Sub-area: (Minimum number of individual forms)	TEST UNIT 81-A	TOTAL	CLASS TOTAL
GLASS			
Container Glass	7 (5)	7 (5)	
Flat Glass	5 (1)	5 (1)	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	8 (2)	8 (2)	20 (8)
CERAMIC			
Hollowware/Flatware	43 (18)	43 (18)	
Architectural Ceramic	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	43 (18)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	1 (1)	1 (1)	1 (1)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	1 (1)	1 (1)	1 (1)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	1 (1)	1 (1)	1 (1)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	0 (0)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL			
	66 (29)	66 (29)	

Test Area: Mellinger Property, Lower Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 2	STP 3	STP 4	TOTAL	CLASS TOTAL
GLASS					
Container Glass	35 (20)	2 (2)	7 (3)	44 (25)	
Flat Glass	43 (3)	- ( )	1 (1)	44 (4)	
Pressed Glass	- ( )	- ( )	1 (1)	1 (1)	
Miscellaneous Glass	- ( )	1 (1)	2 (1)	3 (2)	92 (32)
CERAMIC					
Hollowware/Flatware	- ( )	23 (12)	32 (18)	55 (30)	
Architectural Ceramic	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Ceramic	3 (1)	- ( )	1 (1)	4 (2)	59 (32)
SYNTHETICS					
Container	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	- ( )	0 (0)
WOOD					
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	1 (1)	- ( )	- ( )	1 (1)	1 (1)
STONE					
Worked Stone	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	0 (0)
SHELL					
Worked Shell	2 (1)	- ( )	- ( )	2 (1)	
Unworked Shell	1 (1)	- ( )	- ( )	1 (1)	3 (2)
BONE					
Worked Bone	- ( )	- ( )	1 (1)	1 (1)	
Unworked Bone	2 (1)	- ( )	1 (1)	3 (2)	4 (3)
MISCELLANEOUS					
Brick/Mortar	1 (1)	2 (1)	1 (1)	4 (3)	
Fabric	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	3 (1)	- ( )	3 (1)	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	7 (4)
TOTAL					
	88 (29)	17 (31)	47 (28)	166 (74)	

Test Area: Porkorney #1 Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	STP 3	TOTAL	CLASS TOTAL
GLASS					
Container Glass	2 (1)	5 (2)	2 (1)	9 (4)	
Flat Glass	5 (2)	9 (2)	5 (2)	19 (6)	
Pressed Glass	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	- ( )	28 (10)
CERAMIC					
Hollowware/Flatware	10 (8)	7 (4)	1 (1)	18 (13)	
Architectural Ceramic	- ( )	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	1 (1)	- ( )	1 (1)	19 (14)
SYNTHETICS					
Container	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	1 (1)	1 (1)	2 (2)	2 (2)
WOOD					
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE					
Worked Stone	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	0 (0)
SHELL					
Worked Shell	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	0 (0)
BONE					
Worked Bone	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	9 (1)	- ( )	1 (1)	10 (2)	10 (2)
MISCELLANEOUS					
Brick/Mortar	- ( )	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	0 (0)
TOTAL					
	26 (12)	23 (10)	10 (6)	59 (28)	

Test Area: Porkorney #2 Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 3	STP 4	SPT 5	TOTAL	CLASS TOTAL
GLASS						
Container Glass	1 (1)	- ( )	- ( )	1 (1)	2 (2)	
Flat Glass	- ( )	- ( )	- ( )	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	- ( )	- ( )	2 (2)
CERAMIC						
Molleware/Flatware	- ( )	1 (1)	4 (2)	- ( )	5 (3)	
Architectural Ceramic	- ( )	- ( )	- ( )	1 (1)	1 (1)	
Miscellaneous Ceramic	- ( )	- ( )	- ( )	- ( )	- ( )	6 (4)
SYNTHETICS						
Container	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
WOOD						
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE						
Worked Stone	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
SHELL						
Worked Shell	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
BONE						
Worked Bone	- ( )	- ( )	- ( )	1 (1)	1 (1)	
Unworked Bone	- ( )	- ( )	- ( )	- ( )	- ( )	1 (1)
MISCELLANEOUS						
Brick/Mortar	- ( )	- ( )	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
TOTAL						
	1 (1)	1 (1)	4 (2)	3 (3)	9 (7)	

Test Area: R. Bonavon Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	STP 4	SPT 5	TOTAL	CLASS TOTAL
GLASS						
Container Glass	4 (3)	- ( )	2 (2)	- ( )	6 (5)	
Flat Glass	- ( )	- ( )	- ( )	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	1 (1)	1 (1)	7 (6)
CERAMIC						
Holloware/Flatware	1 (1)	- ( )	3 (3)	- ( )	4 (4)	
Architectural Ceramic	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	- ( )	1 (1)	1 (1)	5 (5)
SYNTHETICS						
Container	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	2 (1)	1 (1)	- ( )	3 (2)	3 (2)
WOOD						
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	9 (1)	9 (1)	9 (1)
STONE						
Worked Stone	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
SHELL						
Worked Shell	1 (1)	- ( )	- ( )	- ( )	1 (1)	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	- ( )	1 (1)
BONE						
Worked Bone	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	1 (1)	- ( )	- ( )	- ( )	1 (1)	1 (1)
MISCELLANEOUS						
Brick/Mortar	- ( )	- ( )	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
TOTAL						
	7 (6)	2 (1)	6 (6)	11 (3)	26 (16)	

Test Area: Poreesky Property, Lower Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 2	TOTAL	CLASS TOTAL
GLASS			
Container Glass	- ( )	- ( )	
Flat Glass	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	0 (0)
CERAMIC			
Hollowware/Flatware	- ( )	- ( )	
Architectural Ceramic	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	0 (0)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	1 (1)	1 (1)	1 (1)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL	1 (1)	1 (1)	

Test Area: Lawback Property, Lower Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	STP 3	SPT 5	TOTAL	CLASS TOTAL
GLASS						
Container Glass	- ( )	2 (1)	- ( )	2 (1)	4 (2)	
Flat Glass	- ( )	1 (1)	3 (?)	5 (2)	9 (3)	
Pressed Glass	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	1 (1)	1 (1)	( )	2 (2)	15 (7)
CERAMIC						
Holloware/Flatware	1 (1)	3 (3)	5 (4)	1 (1)	10 (9)	
Architectural Ceramic	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	1 (1)	- ( )	- ( )	1 (1)	11 (10)
SYNTHETICS						
Container	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	( )	- ( )	0 (0)
WOOD						
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE						
Worked Stone	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	1 (1)	- ( )	1 (1)	1 (1)
SHELL						
Worked Shell	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	1 (1)	- ( )	1 (1)	1 (1)
BONE						
Worked Bone	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	1 (1)	- ( )	1 (1)	
MISCELLANEOUS						
Brick/Mortar	- ( )	2 (1)	1 (1)	- ( )	3 (2)	
Fabric	- ( )	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	- ( )	3 (2)
TOTAL						
	1 (1)	10 (8)	13 (9)	8 (4)	32 (22)	

Test Area: Rechel Property, Lower Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	TOTAL	CLASS TOTAL
GLASS			
Container Glass	17 (6)	17 (6)	
Flat Glass	1 (1)	1 (1)	
Pressed Glass	1 (1)	1 (1)	
Miscellaneous Glass	- ( )	- ( )	19 (8)
CERAMIC			
Hollowware/Flatware	- ( )	- ( )	
Architectural Ceramic	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	0 (0)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	1 (1)	1 (1)	1 (1)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	0 (0)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL	20 (9)	20 (9)	

Test Area: Wasson Property, Lower Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	TOTAL	CLASS TOTAL
GLASS			
Container Glass	- ( )	- ( )	
Flat Glass	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	0 (0)
CERAMIC			
Hollowware/Flatware	5 (3)	5 (3)	
Architectural Ceramic	4 (1)	4 (1)	
Miscelleneous Ceramic	- ( )	- ( )	9 (4)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	3 (1)	3 (1)	3 (1)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	0 (0)
MISCELLANEOUS			
Brick/Mortar	4 (1)	4 (1)	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	4 (1)
TOTAL			
	16 (6)	16 (6)	

Test Area: Peter's Property, Lower Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	STP 3	SPT 4	TOTAL	CLASS TOTAL
GLASS						
Container Glass	2 (1)	- ( )	- ( )	- ( )	2 (1)	
Flat Glass	- ( )	- ( )	- ( )	1 (1)	1 (1)	
Pressed Glass	- ( )	- ( )	1 (1)	- ( )	1 (1)	
Miscellaneous Glass	- ( )	- ( )	1 (1)	1 (1)	2 (2)	6 (5)
CERAMIC						
Hollowware/Flatware	1 (1)	2 (2)	2 (1)	- ( )	5 (4)	
Architectural Ceramic	- ( )	- ( )	- ( )	1 (1)	1 (1)	
Miscelleneous Ceramic	- ( )	- ( )	- ( )	- ( )	- ( )	6 (5)
SYNTHETICS						
Container	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
WOOD						
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE						
Worked Stone	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
SHELL						
Worked Shell	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
BONE						
Worked Bone	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	1 (1)	- ( )	- ( )	1 (1)	2 (2)	2 (2)
MISCELLANEOUS						
Brick/Mortar	- ( )	- ( )	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
TOTAL						
	4 (3)	2 (2)	4 (3)	4 (4)	14 (12)	

Test Area: Ja. Englert Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	SPT 3	TOTAL	CLASS TOTAL
GLASS					
Container Glass	1 (1)	- ( )	4 (3)	5 (4)	
Flat Glass	- ( )	- ( )	5 (1)	5 (1)	
Pressed Glass	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	1 (1)	1 (1)	2 (2)	12 (7)
CERAMIC					
Hollowware/Flatware	2 (1)	1 (1)	4 (2)	7 (4)	
Architectural Ceramic	- ( )	- ( )	1 (1)	1 (1)	
Miscelleneous Ceramic	- ( )	- ( )	5 (2)	5 (2)	13 (7)
SYNTHETICS					
Container	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	- ( )	0 (0)
WOOD					
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE					
Worked Stone	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	0 (0)
SHELL					
Worked Shell	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	0 (0)
BONE					
Worked Bone	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	1 (1)	25 (1)	26 (2)	26 (2)
MISCELLANEOUS					
Brick/Mortar	- ( )	1 (1)	- ( )	1 (1)	
Fabric	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	1 (1)
TOTAL					
	3 (2)	4 (4)	45 (11)	57 (17)	

Test Area: Long Property, Lower Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	STP 3	SPT 4	TOTAL	CLASS TOTAL
GLASS						
Container Glass	- ( )	- ( )	8 (4)	- ( )	8 (4)	
Flat Glass	- ( )	- ( )	1 (1)	- ( )	1 (1)	
Pressed Glass	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	2 (1)	- ( )	2 (1)	11 (6)
CERAMIC						
Hollowware/Flatware	1 (1)	1 (1)	8 (4)	1 (1)	11 (7)	
Architectural Ceramic	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	- ( )	1 (1)	1 (1)	12 (8)
SYNTHETICS						
Container	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	3 (1)	1 (1)	4 (2)	4 (2)
WOOD						
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	1 (1)	- ( )	- ( )	- ( )	1 (1)	1 (1)
STONE						
Worked Stone	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	1 (1)	- ( )	1 (1)	1 (1)
SHELL						
Worked Shell	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
BONE						
Worked Bone	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	1 (1)	3 (1)	8 (1)	4 (1)	16 (4)	16 (4)
MISCELLANEOUS						
Brick/Mortar	1 (1)	- ( )	- ( )	1 (1)	2 (2)	
Fabric	- ( )	- ( )	1 (1)	- ( )	1 (1)	
Leather	- ( )	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	- ( )	3 (3)
TOTAL						
	4 (4)	4 (2)	32 (14)	8 (5)	48 (25)	

Test Area: Wolfe Property, Lower Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	TOTAL	CLASS TOTAL
GLASS			
Container Glass	1 (1)	1 (1)	
Flat Glass	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	1 (1)
CERAMIC			
Holloware/Flatware	- ( )	- ( )	
Architectural Ceramic	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	0 (0)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	0 (0)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL			
	1 (1)	1 (1)	

Test Area: Kreager Property, Lower Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	TOTAL	CLASS TOTAL
GLASS			
Container Glass	- ( )	- ( )	
Flat Glass	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	0 (0)
CERAMIC			
Hollowware/Flatware	- ( )	- ( )	
Architectural Ceramic	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	0 (0)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	1 (1)	1 (1)	1 (1)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	0 (0)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL			
	1 (1)	1 (1)	

Test Area: Karchner Property, Lower Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	TOTAL	CLASS TOTAL
GLASS			
Container Glass	1 (1)	1 (1)	
Flat Glass	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	1 (1)
CERAMIC			
Hollowware/Flatware	1 (1)	1 (1)	
Architectural Ceramic	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	1 (1)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	0 (0)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL			
	2 (2)	2 (2)	

Test Area: Raible Property/Lockkeepers House

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 2 (Side Door)	STP 3 (Side Door)	STP 4 (Bottom of Lock)	STP 5	SPT 6 (Side Door)	STP 7 (Lower Gate)	TOTAL	CLASS TOTAL
GLASS								
Container Glass	- ( )	- ( )	22 (8)	- ( )	- ( )	- ( )	22 (8)	
Flat Glass	2 (1)	- ( )	4 (2)	- ( )	3 (1)	- ( )	9 (4)	
Pressed Glass	- ( )	- ( )	- ( )	- ( )	1 (1)	- ( )	1 (1)	
Miscellaneous Glass	- ( )	1 (1)	3 (1)	- ( )	- ( )	1 (1)	5 (3)	37(16)
CERAMIC								
Hollowware/Flatware	3 (2)	- ( )	- ( )	- ( )	3 (3)	3 (1)	9 (6)	
Architectural Ceramic	1 (1)	- ( )	- ( )	- ( )	- ( )	- ( )	1 (1)	
Miscellaneous Ceramic	- ( )	- ( )	- ( )	1 (1)	2 (1)	- ( )	3 (2)	13(9)
SYNTHETICS								
Container	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	1 (1)	1 (1)	- ( )	2 (2)	0(0)
WOOD								
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	0(0)
STONE								
Worked Stone	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	1 (1)	- ( )	1 (1)	1(1)
SHELL								
Worked Shell	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	0(0)
BONE								
Worked Bone	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	4 (1)	- ( )	- ( )	- ( )	1 (1)	- ( )	5 (2)	5(2)
MISCELLANEOUS								
Brick/Mortar	- ( )	2 (1)	- ( )	- ( )	- ( )	- ( )	2 (1)	
Fabric	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	2(1)
TOTAL								
	10 (5)	3 (2)	29 (11)	2 (2)	12 (9)	4 (2)	60 (31)	

Test Area: Sanders Property, Upper Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	TOTAL	CLASS TOTAL
GLASS				
Container Glass	28 (11)	12 (8)	40 (19)	
Flat Glass	- ( )	- ( )	- ( )	
Pressed Glass	- ( )	1 (1)	1 (1)	
Miscellaneous Glass	- ( )	2 (1)	2 (1)	43 (21)
CERAMIC				
Holloware/Flatware	- ( )	16 (7)	16 (7)	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	- ( )	16 (7)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	1 (1)	1 (1)	1 (1)
WOOD				
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	0 (0)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	1 (1)	1 (1)	1 (1)
MISCELLANEOUS				
Brick/Mortar	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	0 (0)
TOTAL				
	28 (11)	33 (19)	61 (30)	

Test Area: Ryan Property, Upper Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	TOTAL	CLASS TOTAL
GLASS				
Container Glass	14 (7)	9 (5)	23 (12)	
Flat Glass	4 (1)	2 (1)	6 (2)	
Pressed Glass	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	1 (1)	1 (1)	30 (15)
CERAMIC				
Hollowware/Flatware	6 (4)	4 (3)	10 (7)	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	- ( )	10 (7)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	2 (1)	2 (1)	2 (1)
WOOD				
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	0 (0)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	1 (1)	8 (1)	9 (2)	9 (2)
MISCELLANEOUS				
Brick/Mortar	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	0 (0)
TOTAL				
	25 (13)	26 (12)	51 (25)	

Test Area: Allison/Hobbs Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	TOTAL	CLASS TOTAL
GLASS			
Container Glass	- ( )	- ( )	
Flat Glass	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	0 (0)
CERAMIC			
Hollowware/Flatware	4 (4)	4 (4)	
Architectural Ceramic	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	4 (4)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	0 (0)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	1 (1)	1 (1)	1 (1)
TOTAL			
	5 (5)	5 (5)	

Test Area: Harris Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	STP 4	SPT 6	TOTAL	CLASS TOTAL
GLASS						
Container Glass	- ( )	1 (1)	4 (2)	1 (1)	6 (4)	
Flat Glass	- ( )	6 (2)	- ( )	- ( )	6 (2)	
Pressed Glass	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	4 (1)	- ( )	- ( )	4 (1)	16 (7)
CERAMIC						
Holloware/Flatware	- ( )	4 (2)	- ( )	- ( )	4 (2)	
Architectural Ceramic	- ( )	1 (1)	1 (1)	- ( )	2 (2)	
Miscelleneous Ceramic	- ( )	- ( )	- ( )	- ( )	- ( )	6 (4)
SYNTHETICS						
Container	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
WOOD						
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE						
Worked Stone	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	1 (1)	- ( )	- ( )	1 (1)	1 (1)
SHELL						
Worked Shell	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	1 (1)	- ( )	- ( )	1 (1)	1 (1)
BONE						
Worked Bone	- ( )	1 (1)	- ( )	- ( )	1 (1)	
Unworked Bone	1 (1)	- ( )	7 (1)	1 (1)	9 (3)	9 (4)
MISCELLANEOUS						
Brick/Mortar	1 (1)	- ( )	- ( )	- ( )	1 (1)	
Fabric	- ( )	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	- ( )	1 (1)
TOTAL						
	2 (2)	19 (10)	12 (4)	2 (2)	35 (18)	

Test Area: L. Williams Property, Upper Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	TOTAL	CLASS TOTAL
GLASS				
Container Glass	1 (1)	- ( )	1 (1)	
Flat Glass	3 (2)	1 (1)	4 (3)	
Pressed Glass	- ( )	1 (1)	1 (1)	
Miscellaneous Glass	- ( )	1 (1)	1 (1)	7 (3)
CERAMIC				
Hollowware/Flatware	3 (3)	1 (1)	4 (4)	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	- ( )	4 (4)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	0 (0)
WOOD				
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	0 (0)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	17 (1)	17 (1)	17 (1)
MISCELLANEOUS				
Brick/Mortar	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	0 (0)
TOTAL				
	7 (6)	21 (4)	28 (11)	

Test Area: Barzona Property, Upper Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	STP 3	TOTAL	CLASS TOTAL
GLASS					
Container Glass	9 (5)	- ( )	2 (1)	11 (6)	
Flat Glass	8 (2)	- ( )	1 (1)	9 (3)	
Pressed Glass	- ( )	- ( )	1 (1)	1 (1)	
Miscellaneous Glass	1 (1)	- ( )	1 (1)	2 (2)	23 (13)
CERAMIC					
Hollowware/Flatware	2 (2)	9 (5)	1 (1)	12 (8)	
Architectural Ceramic	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	- ( )	- ( )	12 (8)
SYNTHETICS					
Container	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	1 (1)	- ( )	- ( )	1 (1)	1 (1)
WOOD					
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE					
Worked Stone	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	0 (0)
SHELL					
Worked Shell	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	0 (0)
BONE					
Worked Bone	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	4 (1)	4 (1)	4 (1)
MISCELLANEOUS					
Brick/Mortar	- ( )	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	0 (0)
TOTAL	21 (11)	9 (5)	10 (6)	40 (23)	

Test Area: Swartz-Myers Property, Upper Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	STP 3	TOTAL	CLASS TOTAL
GLASS					
Container Glass	- ( )	2 (1)	3 (1)	5 (2)	
Flat Glass	1 (1)	3 (1)	1 (1)	5 (3)	
Pressed Glass	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	1 (1)	- ( )	1 (1)	11 (6)
CERAMIC					
Hollowware/Flatware	2 (2)	8 (5)	1 (1)	11 (8)	
Architectural Ceramic	- ( )	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	1 (1)	- ( )	1 (1)	12 (9)
SYNTHETICS					
Container	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	- ( )	0 (0)
WOOD					
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE					
Worked Stone	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	1 (1)	- ( )	- ( )	1 (1)	1 (1)
SHELL					
Worked Shell	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	0 (0)
BONE					
Worked Bone	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	1 (1)	- ( )	1 (1)	1 (1)
MISCELLANEOUS					
Brick/Mortar	- ( )	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	0 (0)
TOTAL					
	4 (4)	16 (10)	5 (3)	25 (17)	

Test Area: A. Crissman Property, Upper Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	STP 3	TOTAL	CLASS TOTAL
GLASS					
Container Glass	8 (4)	8 (5)	25 (10)	41 (19)	
Flat Glass	7 (2)	5 (2)	3 (1)	15 (5)	
Pressed Glass	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Glass	1 (1)	- ( )	- ( )	1 (1)	57 (25)
CERAMIC					
Hollowware/Flatware	20 (10)	5 (5)	1 (1)	26 (16)	
Architectural Ceramic	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Ceramic	1 (1)	1 (1)	1 (1)	3 (3)	29 (19)
SYNTHETICS					
Container	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	- ( )	0 (0)
WOOD					
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE					
Worked Stone	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	0 (0)
SHELL					
Worked Shell	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	1 (1)	1 (1)	1 (1)
BONE					
Worked Bone	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	3 (1)	1 (1)	1 (1)	5 (3)	5 (3)
MISCELLANEOUS					
Brick/Mortar	- ( )	1 (1)	- ( )	1 (1)	
Fabric	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	1 (1)
TOTAL					
	40 (19)	21 (15)	32 (15)	93 (49)	

Test Area: Weaver Property, Upper Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	STP 3	TOTAL	CLASS TOTAL
GLASS					
Container Glass	4 (1)	28 (15)	3 (2)	35 (18)	
Flat Glass	2 (1)	8 (2)	1 (1)	11 (4)	
Pressed Glass	- ( )	1 (1)	- ( )	1 (1)	
Miscellaneous Glass	- ( )	2 (1)	3 (1)	5 (2)	52 (25)
CERAMIC					
Hollowware/Flatware	8 (6)	- ( )	6 (3)	14 (9)	
Architectural Ceramic	- ( )	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	1 (1)	- ( )	- ( )	1 (1)	15 (10)
SYNTHETICS					
Container	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	1 (1)	1 (1)	1 (1)
WOOD					
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE					
Worked Stone	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	0 (0)
SHELL					
Worked Shell	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	0 (0)
BONE					
Worked Bone	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	- ( )	- ( )	0 (0)
MISCELLANEOUS					
Brick/Mortar	- ( )	- ( )	1 (1)	1 (1)	
Fabric	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	1 (1)
TOTAL					
	15 (9)	39 (19)	15 (9)	69 (37)	

Test Area: T. Probst Property, Upper Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	TOTAL	CLASS TOTAL
GLASS			
Container Glass	4 (2)	4 (2)	
Flat Glass	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	4 (2)
CERAMIC			
Holloware/Flatware	2 (1)	2 (1)	
Architectural Ceramic	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	2 (1)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	4 (1)	4 (1)	4 (1)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL			
	10 (4)	10 (4)	

Test Area: Eisenhower Property, Upper Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	TOTAL	CLASS TOTAL
GLASS			
Container Glass	- ( )	- ( )	
Flat Glass	- ( )	- ( )	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	0 (0)
CERAMIC			
Holloware/Flatware	- ( )	- ( )	
Architectural Ceramic	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	0 (0)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	1 (1)	1 (1)	1 (1)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	1 (1)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	0 (0)
MISCELLANEOUS			
Brick/Mortar	1 (1)	1 (1)	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	1 (1)
TOTAL	2 (2)	2 (2)	

Test Area: Rickard #2 Property Upper Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	TOTAL	CLASS TOTAL
GLASS				
Container Glass	- ( )	- ( )	- ( )	
Flat Glass	6 (2)	1 (1)	7 (3)	
Pressed Glass	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	7 (3)
CERAMIC				
Holloware/Flatware	- ( )	2 (1)	2 (1)	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	- ( )	2 (1)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	0 (0)
WOOD				
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	0 (0)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	1 (1)	- ( )	1 (1)	1 (1)
MISCELLANEOUS				
Brick/Mortar	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	0 (0)
TOTAL				
	7 (3)	3 (2)	10 (5)	

Test Area: Henker Property, Upper Lockport

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	TOTAL	CLASS TOTAL
GLASS				
Container Glass	2 (2)	4 (2)	6 (4)	
Flat Glass	1 (1)	1 (1)	2 (2)	
Pressed Glass	- ( )	1 (1)	1 (1)	
Miscellaneous Glass	- ( )	- ( )	- ( )	9 (7)
CERAMIC				
Holloware/Flatware	1 (1)	2 (1)	3 (2)	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscellaneous Ceramic	1 (1)	- ( )	1 (1)	4 (3)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	0 (0)
WOOD				
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	0 (0)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	- ( )	0 (0)
MISCELLANEOUS				
Brick/Mortar	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	0 (0)
TOTAL				
	5 (5)	8 (5)	13 (10)	

Test Area: Kreager Property, Upper Lockport

..imary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	TOTAL	CLASS TOTAL
GLASS				
Container Glass	1 (1)	1 (1)	2 (2)	
Flat Glass	2 (1)	- ( )	2 (1)	
Pressed Glass	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	4 (3)
CERAMIC				
Hollowware/Flatware	2 (1)	- ( )	2 (1)	
Architectural Ceramic	1 (1)	- ( )	1 (1)	
Miscellaneous Ceramic	- ( )	- ( )	- ( )	3 (2)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	0 (0)
WOOD				
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	0 (0)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	1 (1)	- ( )	1 (1)	1 (1)
MISCELLANEOUS				
Brick/Mortar	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	0 (0)
TOTAL				
	7 (5)	1 (1)	8 (6)	

Test Area: Riggle/Rote Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	TOTAL	CLASS TOTAL
GLASS				
Container Glass	4 (4)	11 (5)	15 (9)	
Flat Glass	1 (1)	1 (1)	2 (1)	
Pressed Glass	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	17 (11)
CERAMIC				
Hollowware/Flatware	- ( )	2 (1)	2 (1)	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	- ( )	2 (1)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	0 (0)
WOOD				
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	1 (1)	1 (1)	1 (1)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	- ( )	0 (0)
MISCELLANEOUS				
Brick/Mortar	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	1 (1)	1 (1)	1 (1)
TOTAL				
	5 (5)	16 (9)	21 (14)	

Test Area: Haussener/J. Hanna Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	STP 3	TOTAL	CLASS TOTAL
GLASS					
Container Glass	- ( )	- ( )	- ( )	- ( )	
Flat Glass	1 (1)	1 (1)	4 (2)	6 (4)	
Pressed Glass	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	- ( )	6 (4)
CERAMIC					
Holloware/Flatware	3 (2)	1 (1)	8 (6)	12 (9)	
Architectural Ceramic	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	- ( )	- ( )	12 (9)
SYNTHETICS					
Container	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	2 (2)	- ( )	2 (2)	2 (2)
WOOD					
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE					
Worked Stone	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	0 (0)
SHELL					
Worked Shell	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	0 (0)
BONE					
Worked Bone	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	2 (1)	2 (1)	2 (1)
MISCELLANEOUS					
Brick/Mortar	- ( )	- ( )	1 (1)	1 (1)	
Fabric	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	1 (1)
TOTAL					
	4 (3)	4 (4)	15 (10)	23 (17)	

Test Area: Stern/W. Hanna Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	SURFACE	STP 3	SPT 4	TOTAL	CLASS TOTAL
GLASS					
Container Glass	- ( )	1 (1)	2 (1)	3 (2)	
Flat Glass	- ( )	1 (1)	1 (1)	2 (2)	
Pressed Glass	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Glass	1 (1)	- ( )	- ( )	1 (1)	6 (5)
CERAMIC					
Hollowware/Flatware	1 (1)	- ( )	- ( )	1 (1)	
Architectural Ceramic	- ( )	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	- ( )	- ( )	1 (1)
SYNTHETICS					
Container	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	1 (1)	1 (1)	1 (1)
WOOD					
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE					
Worked Stone	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	0 (0)
SHELL					
Worked Shell	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	0 (0)
BONE					
Worked Bone	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	2 (1)	- ( )	- ( )	2 (1)	2 (0)
MISCELLANEOUS					
Brick/Mortar	- ( )	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	0 (0)
TOTAL					
	4 (3)	2 (2)	4 (3)	10 (8)	

Test Area: Spangler Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	TOTAL	CLASS TOTAL
GLASS				
Container Glass	- ( )	- ( )	- ( )	
Flat Glass	1 (1)	- ( )	1 (1)	
Pressed Glass	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	1 (1)
CERAMIC				
Holloware/Flatware	- ( )	2 (1)	2 (1)	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	- ( )	2 (1)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	0 (0)
WOOD				
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	0 (0)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	- ( )	0 (0)
MISCELLANEOUS				
Brick/Mortar	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	0 (0)
TOTAL				
	1 (1)	2 (1)	3 (2)	

Test Area: Probst Farm Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 2	TOTAL	CLASS TOTAL
GLASS			
Container Glass	9 (3)	9 (3)	
Flat Glass	2 (1)	2 (1)	
Pressed Glass	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	11 (4)
CERAMIC			
Hollowware/Flatware	- ( )	- ( )	
Architectural Ceramic	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	0 (0)
SYNTHETICS			
Container	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	0 (0)
WOOD			
Worked (Diagnostic) Wood	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	0 (0)
STONE			
Worked Stone	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	0 (0)
SHELL			
Worked Shell	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	0 (0)
BONE			
Worked Bone	- ( )	- ( )	
Unworked Bone	5 (1)	5 (1)	5 (1)
MISCELLANEOUS			
Brick/Mortar	- ( )	- ( )	
Fabric	- ( )	- ( )	
Leather	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	0 (0)
TOTAL	16 (5)	16 (5)	

Test Area: R.D./I. Packer Property

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	STP 4	STP 5	STP 6	TOTAL	CLASS TOTAL
GLASS							
Container Glass	- ( )	2 (1)	- ( )	1 (1)	2 (1)	5 (3)	
Flat Glass	- ( )	3 (1)	2 (1)	3 (1)	8 (2)	16 (5)	
Pressed Glass	- ( )	- ( )	- ( )	1 (1)	- ( )	1 (1)	
Miscellaneous Glass	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	22 (9)
CERAMIC							
Hollowware/Flatware	6 (4)	4 (2)	- ( )	2 (1)	- ( )	12 (7)	
Architectural Ceramic	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	12 (7)
SYNTHETICS							
Container	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
WOOD							
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE							
Worked Stone	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
SHELL							
Worked Shell	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
BONE							
Worked Bone	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
MISCELLANEOUS							
Brick/Mortar	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	- ( )	- ( )	0 (0)
TOTAL							
	6 (4)	9 (4)	2 (1)	7 (4)	10 (3)	34 (16)	

Test Area: Queen's Run Rupert/Connelley Prop./Str. #1

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 1	STP 2	TOTAL	CLASS TOTAL
GLASS				
Container Glass	5 (3)	11 (6)	16 (9)	
Flat Glass	- ( )	1 (1)	1 (1)	
Pressed Glass	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	17 (10)
CERAMIC				
Hollowware/Flatware	3 (2)	- ( )	3 (2)	
Architectural Ceramic	- ( )	- ( )	- ( )	
Miscellaneous Ceramic	- ( )	- ( )	- ( )	3 (2)
SYNTHETICS				
Container	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	10 (1)	10 (1)	10 (1)
WOOD				
Worked (Diagnostic) Wood	5 (1)	- ( )	5 (1)	
Unworked Wood	1 (1)	- ( )	1 (1)	6 (2)
STONE				
Worked Stone	- ( )	- ( )	- ( )	
Unworked Stone/Slag	- ( )	- ( )	- ( )	0 (0)
SHELL				
Worked Shell	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	0 (0)
BONE				
Worked Bone	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	- ( )	0 (0)
MISCELLANEOUS				
Brick/Mortar	3 (1)	- ( )	3 (1)	
Fabric	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	3 (1)
TOTAL				
	17 (8)	22 (8)	39 (16)	

Test Area: Queen's Run Chapman Prop./ Str. #11

Primary Function Classification: Sub-area: (Minimum number of individual forms)	STP 2	STP 3	STP 4	TOTAL	CLASS TOTAL
GLASS					
Container Glass	3 (1)	3 (1)	6 (3)	12 (5)	
Flat Glass	12 (2)	2 (1)	18 (2)	32 (5)	
Pressed Glass	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Glass	- ( )	- ( )	- ( )	- ( )	44 (10)
CERAMIC					
Hollowware/Flatware	5 (3)	- ( )	3 (2)	8 (5)	
Architectural Ceramic	- ( )	- ( )	- ( )	- ( )	
Miscelleneous Ceramic	- ( )	- ( )	1 (1)	1 (1)	9 (6)
SYNTHETICS					
Container	- ( )	- ( )	- ( )	- ( )	
Miscellaneous Plastic/Rubber	- ( )	- ( )	- ( )	- ( )	0 (0)
WOOD					
Worked (Diagnostic) Wood	- ( )	- ( )	- ( )	- ( )	
Unworked Wood	- ( )	- ( )	- ( )	- ( )	0 (0)
STONE					
Worked Stone	1 (1)	- ( )	- ( )	1 (1)	
Unworked Stone/Slag	- ( )	- ( )	- ( )	- ( )	1 (1)
SHELL					
Worked Shell	- ( )	- ( )	- ( )	- ( )	
Unworked Shell	- ( )	- ( )	- ( )	- ( )	0 (0)
BONE					
Worked Bone	- ( )	- ( )	- ( )	- ( )	
Unworked Bone	- ( )	- ( )	- ( )	- ( )	0 (0)
MISCELLANEOUS					
Brick/Mortar	- ( )	- ( )	- ( )	- ( )	
Fabric	- ( )	- ( )	- ( )	- ( )	
Leather	- ( )	- ( )	- ( )	- ( )	
Nut/Seed	- ( )	- ( )	- ( )	- ( )	0 (0)
TOTAL					
	21 (7)	5 (2)	28 (8)	54 (17)	

METALLIC HISTORIC/RECENT PERIOD ARTIFACTS FROM SIX PHASE I INVESTIGATED STUDY AREAS WITHIN THE LOCK HAVEN FLOOD PROTECTION PROJECT AREA

INTRODUCTION

The metal artifact assemblage represents 33.3 % of the total artifacts recovered during Phase I excavations. This assemblage includes nails, can fragments, coins and various hardware items, as well as many unidentifiable ferrous concretions. Many of the recognizable items (e.g. nails and cans), exhibit a state of preservation so poor as to render them almost useless as diagnostic items. By far, the largest identifiable portion of the assemblage consists of nails and nail fragments (49.7 %). Cans constitute only a small part of the overall total (5.5 %), but if well preserved, can be quite useful temporal indicators. Although only four coins were recovered during the excavations, they represent the most unquestionably reliable source of temporal placement because a date is pressed on the coin at the time of minting. This mint date can be used as a terminus post quem for any material recovered in association with these coins. Also items made of stainless steel and aluminum appear in the assemblage, and may, like the coins, be dated and used as a date after which associated items were deposited.

Temporal placement of the artifacts is not an end in itself. Assigning dates to the recovered items is merely a single step in the process of reconstructing the lifeways of the people that deposited the items that have been recovered and inhabited the area in the past. Ideally, past social, economic and ethnic situations can be better understood through the analysis of these items, and their subsequent interpretation. Only by incorporating the analysis of the metal assemblage with that of the other types (e.g. glass, bone, ceramics, wood), and treating this complete assemblage, not as representative of a distinct slice (or many slices) in time, but as a part of a

continuing process of human development, can we hope to fully realize the socio-economic value of this material.

ANALYTICAL METHODOLOGY

The survey encompassed many distinct geographic, political, economic and social locations in the Lock Haven/Lockport area, thus the metal artifacts were sorted first by location, and then by properties within each location so as to ensure the integrity of the analysis and to reveal any variation in empirical patterns between locations. The artifacts were sorted and counted by morphological type within each test pit for each property represented in the study, and any diagnostic items were noted for later analysis. (The counts reveal any concentrations of particular artifact types that exist, and are useful in interpreting inter-locational variation). In turn, any artifactual variation that can be shown to exist between locations may be thought of as indications of ethnic or socio-economic variation between distinct geographical and political entities. The recovered items must be analyzed as representing a part, or parts, of a continuum. Human social development is not a series of successive events, but instead a continually evolving process, and it is this processual development that must be kept in mind when attempting to interpret the past.

Heavy corrosion, in many instances, severely limits the diagnostic value of the metal artifacts, rendering socio-economic interpretations impossible. In such cases, an attempt was made to develop a simple temporal and/or functional analysis of the objects so as to reveal any possible clues as to their placement along the continuum represented by the assemblage. By associating them in time

and space with other, more diagnostic artifacts, they can aid in further developing a complete and accurate reconstruction of past socio-economic conditions.

The value of any ethnological or socio-economic interpretation is restricted by the natural internal constraints involved with the limited excavations that are actually conducted during Phase I recovery. The analysis of artifacts recovered from a Phase I survey should reveal areas of possible cultural significance, areas where further excavation may be of considerable ethnological value, subsequently any ethnological interpretations should be recognized as being based on incomplete and scant evidence. Further excavation as a result recommendations made by Phase I analysis should be expected to lead to the recovery of many significant interpretive artifacts.

NAILS

Nails are among the simplest and most widespread items produced by societies over the last two centuries. As such, they lend themselves quite well to ethnological interpretation because they are among the most universally used objects by members of those societies, and are widely diffused throughout all aspects of the cultures. It is possible to arrive at ethnological interpretations by examining the form, meaning, use and function of a simple cut nail specimen, provided, of course, that the artifact is preserved in a state that permits precise identification (Fontana 1965:89). Unfortunately, the specimens recovered during the Phase I excavations are extremely corroded and do not readily lend themselves to accurate identification of form. A method of chemical micro-analysis to determine chemical variation reflected in differences in iron ore sources or iron

smelting and forging processes has been developed (Frurip et al 1983), but is clearly beyond the scope of this analysis. Instead, these artifacts must be used in a most general manner in conjunction with other artifact types in any attempt at reconstructing past ethnological situations.

A total of 429 nails and nail fragments (49.7 % of the metal assemblage) were recovered during excavation. This total represents cut nail and wire nail specimens, as well as unidentifiable nail fragments. Heavy corrosion severely limits the possibility of identification of nail type and, likewise, the diagnostic value of 286 of these specimens (63.6 % of the nails and nail fragments). Of the remaining 164 identifiable nails, 63 are cut nails, and 101 are wire nails.

Cut nails were first manufactured in America shortly after the Revolution, and did not supercede the hand wrought nail until at least 1820. Credit for the initial invention of cut nails is largely anonymous, but America seems to have been leading the British in this particular industry, with one of the earliest cut nail machines in Pennsylvania being built in Harrisburg in 1789 (Nelson 1968:4-9).

Several wire nail factories seem to have been established in New York in the 1850's, following their development in Europe, with the earliest wire nails being made in the smaller sizes for items like cigar boxes instead of the larger sizes needed for building construction. American wire nail machinery was not really perfected until the 1870's, and it wasn't until the 1890's that wire nails became the type preferred by most builders. Many builders still prefer using cut nails for particular purposes because they exhibit greater clenching ability than wire nails (Nelson 1968:9-10).

For nails to be used as a dating tool in any but the most general terms, certain factors must be considered. First, since cut nails were

machine made, their specific forms underwent changes as new machines were invented and improved upon. As a result, patent dates on nail-making machines that produce distinctive features on the products, can be traced, and bottom dates for particular forms can be reached (Fontana 1965:86). Second, cut nails manufactured after c.1830 are virtually indistinguishable from cut nails produced today. And finally, wire nails do not have the clearly defined evolution of development that makes the cut nail so useful as a dating tool. Generally, the presence of wire nails indicates, at the earliest, late nineteenth century construction (Nelson 1968:8-11).

None of the nails or nail fragments included in the assemblage are well preserved enough to allow more than a basic categorization as to nail type. The corrosion inhibited any further identification in all cases. The presence of cut nails in the assemblage is of almost no consequence in the analysis, because they could have been deposited at any time from the 1790's until the present. But the presence of wire nails in the assemblage necessarily dates their deposition to sometime after the 1850's, probably much later.

There are 164 specimens of identifiable type in the assemblage (36.4 % of the total nails and nail fragments), 63 are cut nails (38.4 % of identifiable specimens), and 101 are wire nails (61.6 % of identifiable specimens). Most locations that contain identifiable types exhibit an almost equal proportion of cut nails to wire nails. The one exception is Upper Lockport where 39 identifiable specimens (52.7 % of total nails and nail fragments from Upper Lockport) were recovered. Upper Lockport contains a high proportion of wire nails with 33 being recovered (84.6 % of identifiable specimens from Upper Lockport, with cut nails comprising only the remaining 15.4 %). This tendency may indicate an earlier introduction and use of wire nails in Upper Lockport than in the other locations, but more likely, it simply

represents a more recent deposition date for the properties in Upper Lockport from which they were recovered, specifically STP 3 at the Weaver property, and STP 2 at the Barzona property.

Another anomaly worth noting is that Lower Lockport contains, by far, the largest number of both identifiable and unidentifiable nails (242 specimens, or 53.8 % of all nail specimens). Although the proportion of cut nails and wire nails are almost identical, the shear number of specimens from Lower Lockport in comparison to the other locations may indicate some ethnological, or socio-economic variation.

COINS

Four coins were recovered during the Phase I excavations, three from Lower Lockport, and one from Upper Lockport. As discussed previously, because mint dates are stamped on the coins themselves during the minting process, these dates can act as a date after which all associated material must have been deposited. Often corrosion or severe wear can obliterate the date on a coin, but sufficient distinguishing marks may remain to identify it's type, and thus narrow the temporal placement to within a reasonably certain range.

The single specimen from Upper Lockport is a very worn Buffalo Nickel, and was recovered in STP 1 at the Ryan property. The date is obliterated, but a total of approximately one and one quarter billion of these coins where minted in Philadelphia, Denver, and San Francisco between 1913 and 1938, placing even it's earliest possible deposition well into the twentieth century (Yeoman 1969:38-39).

Two of three coins recovered from Lower Lockport were found at the Mellinger property, and the third from the R. Donovan property. The Donovan specimen is an Indian Head cent, dating 1883, found in STP

5, in good condition, but displaying some cupric discoloration. The Indian Head cent was minted in Philadelphia between the years 1859 and 1909, and in San Francisco in 1908 and 1909, with about forty-five and a half million coins being struck in 1883 (Yeoman 1969:28).

The Mellinger property in Lower Lockport produced two specimens, a one cent piece from STP 2, and a five cent piece from STP 4. The one cent piece is a Large Cent type dated 1850, in good condition, showing cupric discoloration. Less than four and a half million coins of this type were struck in 1850, all in Philadelphia (Yeoman 1969:26). The five cent piece is a Liberty Head Nickel, also in good condition, dated 1909. Liberty Head Nickels were minted in Philadelphia between 1883 and 1912, and in Denver and San Francisco only in 1912, with a little over eleven and a half million minted in 1909 (Yeoman 1969:37).

The diagnostic value of coins, as mentioned earlier, lies in their role as temporal indicators. But placing an artifact in a specific time and place, in itself, does not lead directly to any ethnological interpretation, which is the ultimate goal of archaeological research. Instead, temporal placement is merely used to assist the researcher in achieving this interpretation by fitting associated artifacts into the continuum that comprises human social and cultural evolution. These coins tell us nothing about the lifeways of the individuals that deposited them, and offer very little information as to the processes involved in their deposition, but they do give a terminus post quem date for any associated material. When used in conjunction with evidence obtained from other sources, these dates can become a valuable tool in the formation of any subsequent interpretations and recommendations.

MISCELLANEOUS

A number of other items contained in the metal assemblage are worth noting at this time. Some items are composed, at least in part, of materials (e.g. aluminum and stainless steel) that were not commonly used in household products until the mid-twentieth century. The presence of items containing these materials suggests recent deposition.

Aluminum has been used by man in it's non-metal form for thousands of years in a number of manners, as in clay for making pottery, or as alums in vegetable dyes or medicines. Aluminum is refined and smelted from the ore bauxite. The tremendous bond formed between aluminum and oxygen in it's natural state has long been a barrier in extracting pure aluminum from the ore. The first aluminum producing plants were established in France in 1855, but they employed a costly chemical process. By 1886 a workable electrolytic process for smelting aluminum had been developed, marking the birth of the aluminum industry (Farin 1969:10). Aluminum foil was developed in 1913 and was originally used primarily as cigarette pack linings; household wrap didn't really begin to become widely accepted until the 1940's. Aluminum beverage cans were introduced in 1958, but were not even contenders in the market until the late 1960's (Farin 1969:90). Thus, any specimens in the metal assemblage containing aluminum can most likely be interpreted as representing products of the late twentieth century.

Nine objects containing aluminum were recovered during the Phase I excavations. Five of these objects were found in Upper Lockport, three from Lower Lockport, and one from Rural Woodward Township. All five objects containing aluminum from Upper Lockport were either beverage cans or pull-tabs from beverage cans (three from STP 3 at the

Weaver property, and one each from STP 2 at the Rote property and STP 1 at the Hobbs property). Two of the three aluminum objects recovered from Lower Lockport were also beverage can fragments (Melinger, STP 2; Donovan, STP 4); the third specimen is an aluminum wire fragment (Melinger, STP 3). The aluminum specimen recovered from STP 3 of the Stern Farmstead in Rural Woodward Township is an aluminum foil fragment. As stated earlier, the presence of aluminum packaging products indicates a recent deposition.

Five of the recovered objects are either made entirely of stainless steel, or contain stainless steel. The Airport Clearance Reach yielded two stainless steel products; STP 4 at the Hendricks property contained a small stainless steel ruler, and STP 1 at the Santonica property contained a small glass fuse with stainless steel ends. In Lower Lockport, STP 3 at the Englert-Trailer property produced a stainless steel pocket knife blade. STP 2 at the Rupert property in Queens Run Reach produced a stainless steel clamp, and STP 2 at the Rote property contained a D-size battery with stainless steel ends. Stainless steel, like aluminum was not commonly used in household products until the second half of the twentieth century (Fisher 1963), suggesting a recent deposition date for any items containing this material. None of the objects displayed any corrosion, which also confirms this recent deposition.

OVERVIEW

The metal assemblage offers some indication of possible future archaeological work. Areas of possible cultural significance from the late nineteenth and early twentieth centuries are represented in the assemblage. These areas should be considered for Phase II excavations.

Of course, the metal artifact assemblage should be considered, not individually, but in association with other morphological assemblages, and any decisions concerning future excavations should be based on the Phase I assemblage as a whole. But the metal assemblage does suggest some possible areas for consideration.

Several properties in the Lower Lockport area contained disproportionately large numbers of cut nail specimens. In particular, the Donovan (023) property, which contains 16 cut nail specimens may be a candidate for future excavation. Also the Mellinger (026), and the Pokorney/Saudi (025) properties contained larger numbers of both cut nail and wire nail specimens than most other properties, and may also be worth further archaeological work.

Although the tin can specimens that were recovered were too corroded, and fragmentary to prove of any diagnostic value, in two locations the shear number of specimens may indicate a socio/cultural situation that merits some consideration for Phase II excavations. The Bassinger property in the Airport Clearance area, and the Long (016) property in Lower Lockport, together contained 92% of the total can fragments recovered. Whether these fragments represent the remains of many cans, or simply the fragmentary remains of a few cans, is uncertain. These can fragments were recovered from a single shovel probe in each case. This concentration of fragments at a single locus at each of the properties, rather than being scattered throughout the property may suggest a trash or refuse area instead of evidence for the property having been the location of market or manufacturing area.

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APPENDIX B: Listing of the Distribution and Frequency of Historic/Recent Period Metallic Artifacts by Category within Study Area, Reach, and Property.

LOC	PROP	NAILS (Subtotal)	CUT.N (Subtotal)	WIRE.N (Subtotal)	COINS (Subtotal)
West Water St. Reach	Armstrong/Winslow-Satterlee	8	0	0	0
West Water St. Reach	Helt	1	0	0	0
West Water St. Reach	Mini-Mart	4	0	2	0
West Water St. Reach	President	7	0	0	0
West Water St. Reach	Rose	0	0	1	0
Mill St. Reach	123 Mill St.	0	0	0	0
Mill St. Reach	Boyle 112 Mill St.	0	0	3	0
Mill St. Reach	Hawley Sawmill	0	0	0	0
Mill St. Reach	Kelsey 117 Mill St.	3	2	0	0
Mill St. Reach	R. Crissman 115 Mill St.	7	0	0	0
Mill St. Reach	Shaffer 116-118 Mill St.	2	0	1	0
East Water St. Reach	[illegible]	3	0	3	0
East Water St. Reach	[illegible]/BHT 1	10	0	0	0
East Water St. Reach	Rapuitco Prop. Inc.	10	0	0	0
Airport Clearance Reach	Baltimore Life Ins. E. Main	0	0	0	0
Airport Clearance Reach	Bassinger 836 E. Main St.	1	0	0	0
Airport Clearance Reach	Clark 784 E. Church St.	0	0	0	0
Airport Clearance Reach	Hendricks 775 E. Church St.	0	0	1	0
Airport Clearance Reach	J. Caruso 770 E. Church St.	1	0	0	0
Airport Clearance Reach	Kuntz 772 E. Main St.	1	0	0	0
Airport Clearance Reach	Santonica 852 E. Main St.	0	0	0	0
Airport Clearance Reach	Stamm 854 E. Main St.	0	0	0	0
Airport Clearance Reach	Yost 215 Race St.	21	0	0	0
Castanea Township Reach	Hammermill Water Tank Region	0	0	0	0
Castanea Township Reach	Rt. 220 Castanea Firehall	0	0	0	0
Lower Lockport Reach	Donovan (023)	14	16	6	1
Lower Lockport Reach	Englert-Trailer (017)	13	3	8	0
Lower Lockport Reach	Karchner (008)	0	0	2	0
Lower Lockport Reach	Kreamer (013)	0	0	1	0
Lower Lockport Reach	Laubach (021)	0	3	2	0
Lower Lockport Reach	Lockhouse (001) Raible	15	4	4	0
Lower Lockport Reach	Long (016)	10	1	4	0
Lower Lockport Reach	Melingers (026)	57	9	8	2
Lower Lockport Reach	Peters (018)	0	0	2	0
Lower Lockport Reach	Pokorney/Saudi (025)	12	9	7	0
Lower Lockport Reach	Poremsky (022)	1	0	0	0
Lower Lockport Reach	Kechel (020)	0	0	0	0
Lower Lockport Reach	W. Branch/N. Bank	16	4	3	0
Lower Lockport Reach	Wasson (019)	1	1	5	0
Lower Lockport Reach	Wolfe (014)	1	0	0	0
Upper Lockport Reach	A. Crissman (061)	13	0	1	0
Upper Lockport Reach	Barzona (042)	3	2	9	0
Upper Lockport Reach	Eisenhow (055)	1	0	0	0
Upper Lockport Reach	Hobbs (034)	1	0	0	0
Upper Lockport Reach	Mc Gill/Widman (035) Harris	3	0	0	0
Upper Lockport Reach	Meyers/Swartz (043)	4	4	3	0
Upper Lockport Reach	O. Kreamer (059)	3	0	0	0
Upper Lockport Reach	Rickart (056)	2	0	1	0
Upper Lockport Reach	Rote (065)	1	0	0	0
Upper Lockport Reach	Ryan (033)	0	0	2	1
Upper Lockport Reach	T. Probst (046)	3	0	1	0
Upper Lockport Reach	Weaver (045)	1	0	16	0
Upper Lockport Reach	William (041)	0	0	0	0
Rural Woodward Township	Haussener/Hanna	14	0	0	0
Rural Woodward Township	Packer Farmstead	15	5	0	0
Rural Woodward Township	Probst Farmstead	0	0	0	0
Rural Woodward Township	Spangler	0	0	2	0
Rural Woodward Township	Stern Farmstead	0	0	2	0
Queens Run Reach	Chapman #11	0	0	0	0
Queens Run Reach	Rupert #1	3	0	1	0
Total		286	63	101	4

LOC	PROP	STAIN (Subtotal)	CANS (Subtotal)	ALUM (Subtotal)	WIRE (Subtotal)
West Water St. Reach	Armstrong/Winslow-Satterlee	0	0	0	0
West Water St. Reach	Helt	0	0	0	0
West Water St. Reach	Mini-Mart	0	0	0	0
West Water St. Reach	President	0	0	0	0
West Water St. Reach	Rose	0	0	0	0
Mill St. Reach	123 Mill St.	0	0	0	1
Mill St. Reach	Boyle 112 Mill St.	0	0	0	0
Mill St. Reach	Hawley Sawmill	0	0	0	0
Mill St. Reach	Kelsey 117 Mill St.	0	0	0	0
Mill St. Reach	R. Crissman 115 Mill St.	0	0	0	0
Mill St. Reach	Shaffer 116-118 Mill St.	0	0	0	0
East Water St. Reach	Green	0	1	0	0
East Water St. Reach	Green/BHT 1	0	0	0	0
East Water St. Reach	Rapmitco Prop. Inc.	0	0	0	0
Airport Clearance Reach	Baltimore Life Ins. E. Main	0	0	0	0
Airport Clearance Reach	Bassinger 836 E. Main St.	0	31	0	0
Airport Clearance Reach	Clark 784 E. Church St.	0	0	0	0
Airport Clearance Reach	Hendricks 775 E. Church St.	1	0	0	0
Airport Clearance Reach	J. Caruso 770 E. Church St.	0	0	0	0
Airport Clearance Reach	Kuntz 772 E. Main St.	0	0	0	0
Airport Clearance Reach	Santonica 852 E. Main St.	0	0	0	0
Airport Clearance Reach	Stamm 854 E. Main St.	0	0	0	0
Airport Clearance Reach	Yost 215 Race St.	0	0	0	0
Castanea Township Reach	Hammermill Water Tank Region	0	0	0	0
Castanea Township Reach	Rt. 220 Castanea Firehall	0	0	0	0
Lower Lockport Reach	Donovan (023)	0	0	1	0
Lower Lockport Reach	Englert-Trailer (017)	1	0	0	0
Lower Lockport Reach	Karchner (008)	0	0	0	0
Lower Lockport Reach	Kreamer (013)	0	0	0	0
Lower Lockport Reach	Laubach (021)	0	0	0	0
Lower Lockport Reach	Lockhouse (001) Raible	0	0	0	11
Lower Lockport Reach	Long (016)	0	15	0	1
Lower Lockport Reach	Melingers (026)	0	0	2	1
Lower Lockport Reach	Peters (018)	0	0	0	0
Lower Lockport Reach	Pokorney/Saudi (025)	0	0	0	7
Lower Lockport Reach	Poremsky (022)	0	0	0	0
Lower Lockport Reach	Rechel (020)	0	0	0	2
Lower Lockport Reach	W. Branch/N. Bank	0	0	0	3
Lower Lockport Reach	Wasson (019)	0	0	0	0
Lower Lockport Reach	Wolfe (014)	0	0	0	0
Upper Lockport Reach	A. Crissman (061)	0	0	0	1
Upper Lockport Reach	Barzona (042)	0	0	0	0
Upper Lockport Reach	Eisenhower (055)	0	0	0	0
Upper Lockport Reach	Hobbs (034)	0	0	1	0
Upper Lockport Reach	Mc Gill/Widman (035) Harris	0	0	0	0
Upper Lockport Reach	Meyers/Swartz (043)	0	0	0	0
Upper Lockport Reach	O. Kreamer (059)	0	0	0	0
Upper Lockport Reach	Rickart (056)	0	0	0	0
Upper Lockport Reach	Rote (065)	0	2	1	0
Upper Lockport Reach	Ryan (033)	0	0	0	0
Upper Lockport Reach	T. Probst (046)	0	0	0	0
Upper Lockport Reach	Weaver (045)	0	1	3	1
Upper Lockport Reach	Williams (041)	0	0	0	0
Rural Woodward Township	Haussener/Hanna	0	0	0	0
Rural Woodward Township	Packer Farmstead	0	0	0	0
Rural Woodward Township	Probst Farmstead	0	0	0	0
Rural Woodward Township	Spangler	0	0	0	0
Rural Woodward Township	Stern Farmstead	0	0	1	0
Queens Run Reach	Chapman #11	0	0	0	0
Queens Run Reach	Rupert #1	1	0	0	2
Total		3	50	9	31

LOC	PROP	HARD (Subtotal)	SLAG (Subtotal)	UNK (Subtotal)	MISC (Subtotal)
West Water St. Reach	Armstrong/Winslow-Satterlee	0	3	0	0
West Water St. Reach	Helt	0	0	0	0
West Water St. Reach	Mini-Mart	0	0	1	0
West Water St. Reach	President	0	11	1	0
West Water St. Reach	Rose	0	0	0	0
Mill St. Reach	123 Mill St.	0	0	3	1
Mill St. Reach	Boyle 112 Mill St.	0	0	5	0
Mill St. Reach	Hawley Sawmill	0	0	0	1
Mill St. Reach	Kelsey 117 Mill St.	0	0	0	0
Mill St. Reach	R. Crissman 115 Mill St.	0	0	0	1
Mill St. Reach	Shaffer 116-118 Mill St.	0	0	22	0
East Water St. Reach	Green	0	0	3	0
East Water St. Reach	Green/BHT 1	0	0	29	0
East Water St. Reach	Rapmitco Prop. Inc.	0	0	0	0
Airport Clearance Reach	Baltimore Life Ins. E. Main	0	0	1	0
Airport Clearance Reach	Bassinger 836 E. Main St.	0	0	0	0
Airport Clearance Reach	Clark 784 E. Church St.	0	0	2	0
Airport Clearance Reach	Hendricks 775 E. Church St.	0	0	3	0
Airport Clearance Reach	J. Caruso 770 E. Church St.	0	0	0	0
Airport Clearance Reach	Kuntz 772 E. Main St.	0	0	0	0
Airport Clearance Reach	Santonica 852 E. Main St.	0	0	1	1
Airport Clearance Reach	Stamm 854 E. Main St.	0	0	3	0
Airport Clearance Reach	Yost 215 Race St.	0	0	1	0
Castanea Township Reach	Hammermill Water Tank Region	1	1	2	0
Castanea Township Reach	Rt. 220 Castanea Firehall	1	0	0	0
Lower Lockport Reach	Donovan (023)	7	0	13	0
Lower Lockport Reach	Englert-Trailer (017)	3	0	29	1
Lower Lockport Reach	Karchner (008)	0	0	5	2
Lower Lockport Reach	Kreamer (013)	1	0	0	1
Lower Lockport Reach	Laubach (021)	0	0	18	0
Lower Lockport Reach	Lockhouse (001) Raible	2	0	9	2
Lower Lockport Reach	Long (016)	0	0	0	2
Lower Lockport Reach	Melingers (026)	4	0	0	2
Lower Lockport Reach	Peters (018)	0	0	12	0
Lower Lockport Reach	Pokorney/Saudi (025)	5	0	6	1
Lower Lockport Reach	Poremsky (022)	0	0	0	0
Lower Lockport Reach	Rechel (020)	0	0	2	0
Lower Lockport Reach	W. Branch/N. Bank	5	0	2	2
Lower Lockport Reach	Wasson (019)	0	0	0	0
Lower Lockport Reach	Wolfe (014)	0	0	0	0
Upper Lockport Reach	A. Crissman (061)	0	0	22	0
Upper Lockport Reach	Barzona (042)	3	0	8	0
Upper Lockport Reach	Eisenhower (055)	0	0	0	0
Upper Lockport Reach	Hobbs (034)	0	0	0	0
Upper Lockport Reach	Mc Gill/Widman (035) Harris	1	1	1	0
Upper Lockport Reach	Meyers/Swartz (043)	0	0	9	1
Upper Lockport Reach	O. Kreamer (059)	0	0	0	0
Upper Lockport Reach	Rickart (056)	0	0	0	0
Upper Lockport Reach	Rote (065)	0	0	1	1
Upper Lockport Reach	Ryan (033)	1	0	11	0
Upper Lockport Reach	T. Probst (046)	0	0	0	0
Upper Lockport Reach	Weaver (045)	1	0	36	0
Upper Lockport Reach	Williams (041)	0	0	1	0
Rural Woodward Township	Haussener/Hanna	0	0	4	0
Rural Woodward Township	Packer Farmstead	0	0	3	1
Rural Woodward Township	Probst Farmstead	1	0	1	0
Rural Woodward Township	Spangler	0	0	0	0
Rural Woodward Township	Stern Farmstead	0	0	1	0
Queens Run Reach	Chapman #11	0	0	9	0
Queens Run Reach	Rupert #1	0	0	3	0
Total		36	16	283	20

APPENDIX C: Listing of the Distribution and Frequency of Historic/Recent Period Miscellaneous Metallic Artifacts by Type within Study Area, Reach, Property, and Excavation Unit.

LOC	PROP	STP	COMMENTS
Mill St. Reach	123 Mill St.	1	bottle stopper
Mill St. Reach	Hawley Sawmill	BHT 1	steel pipe
Mill St. Reach	R. Crissman 115 Mill St.	1	ammunition 30-30 shell
East Water St. Reach	Green/BHT 1	B2 (0-10)	non-ferrous
Airport Clearance Reach	Hendricks 775 E. Church St.	4	stainless ruler
Airport Clearance Reach	Santonica 852 E. Main St.	1	glass fuse w/stainless end
Castanea Township Reach	Hammermill Water Tank Region	1	hardware = staple
Castanea Township Reach	Rt. 220 Castanea Firehall	1	door latch w/spring
Lower Lockport Reach	Donovan (023)	1	screw, plumbing fitting
Lower Lockport Reach	Donovan (023)	2	screw
Lower Lockport Reach	Donovan (023)	4	screw, bolt
Lower Lockport Reach	Donovan (023)	5	tubing fragments
Lower Lockport Reach	Englert-Trailer (017)	3	non-ferrous,hoseparts,ss knife
Lower Lockport Reach	Karchner (008)	1	jar lid, ammunition shell
Lower Lockport Reach	Kreamer (013)	2	spike
Lower Lockport Reach	Kreamer (013)	3	fuel filter?
Lower Lockport Reach	Lockhouse (001) Raible	1	bottle cap
Lower Lockport Reach	Lockhouse (001) Raible	3	safety pin
Lower Lockport Reach	Lockhouse (001) Raible	6	hook
Lower Lockport Reach	Lockhouse (001) Raible	7	spike
Lower Lockport Reach	Long (016)	3	ammunition shells
Lower Lockport Reach	Melingers (026)	2	pull-tab,plumb fitting,safepin
Lower Lockport Reach	Melingers (026)	3	alum. wire
Lower Lockport Reach	Melingers (026)	4	ammo. shell
Lower Lockport Reach	Pokorney/Saudi (025)	1	screw,washer,spacer,snap
Lower Lockport Reach	Pokorney/Saudi (025)	2	spacer
Lower Lockport Reach	Pokorney/Saudi (025)	3	bottle cap
Lower Lockport Reach	W. Branch/N. Bank	1	jar lid, utensil handle
Upper Lockport Reach	Barzona (042)	1	screw
Upper Lockport Reach	Barzona (042)	2	spikes
Upper Lockport Reach	Hobbs (034)	1	pull tab
Upper Lockport Reach	Mc Gill/Widman (035) Harris	1	padlock fragment
Upper Lockport Reach	Meyers/Swartz (043)	3	clock gear?
Upper Lockport Reach	Rote (065)	2	alum. pull tab/D-size battery
Upper Lockport Reach	Ryan (033)	2	bolt
Upper Lockport Reach	Weaver (045)	3	alum.-2 bot. caps,pull tab,can
Rural Woodward Township	Packer Farmstead	5	knife blade fragment
Rural Woodward Township	Probst Farmstead	3	spike
Rural Woodward Township	Stern Farmstead	3	foil
Queens Run Reach	Rupert #1	2	stainless clamp

APPENDIX D: Listing of the Distribution and Frequency of Historic/Recent Period Metallic Artifacts by Category within Property and Excavation Unit.

West Water St. Reach

PROP	STP	NAILS	CUT.N	WIRE.N	COINS	STAIN	CANS
Armstrong/Winslow-Satterlee	1	0	0	0	0	0	0
Armstrong/Winslow-Satterlee	2	8	0	0	0	0	0
Helt	2	1	0	0	0	0	0
Mini-Mart	1	0	0	1	0	0	0
Mini-Mart	2	4	0	1	0	0	0
President	2	2	0	0	0	0	0
President	3	1	0	0	0	0	0
President	4	4	0	0	0	0	0
Rose	1	0	0	1	0	0	0
Subtotal		20	0	3	0	0	0

PROP	STP	ALUM	WIRE	HARD	SLAG	UNK	MISC
Armstrong/Winslow-Satterlee	1	0	0	0	1	0	0
Armstrong/Winslow-Satterlee	2	0	0	0	2	0	0
Helt	2	0	0	0	0	0	0
Mini-Mart	1	0	0	0	0	1	0
Mini-Mart	2	0	0	0	0	0	0
President	2	0	0	0	8	0	0
President	3	0	0	0	3	1	0
President	4	0	0	0	0	0	0
Rose	1	0	0	0	0	0	0
Subtotal		0	0	0	14	2	0

Mill St. Reach

PROP	STP	NAILS	CUT.N	WIRE.N	COINS	STAIN	CANS
123 Mill St.	1	0	0	0	0	0	0
123 Mill St.	2	0	0	0	0	0	0
Boyle 112 Mill St.	1	0	0	3	0	0	0
Hawley Sawmill	BHT 1	0	0	0	0	0	0
Kelsey 117 Mill St.	1	3	2	0	0	0	0
R. Crissman 115 Mill St.	1	7	0	0	0	0	0
Shaffer 116-118 Mill St.	1	0	0	1	0	0	0
Shaffer 116-118 Mill St.	2	2	0	0	0	0	0
Subtotal		12	2	4	0	0	0

PROP	STP	ALUM	WIRE	HARD	SLAG	UNK	MISC
123 Mill St.	1	0	1	0	0	2	1
123 Mill St.	2	0	0	0	0	1	0
Boyle 112 Mill St.	1	0	0	0	0	5	0
Hawley Sawmill	BHT 1	0	0	0	0	0	1
Kelsey 117 Mill St.	1	0	0	0	0	0	0
R. Crissman 115 Mill St.	1	0	0	0	0	0	1
Shaffer 116-118 Mill St.	1	0	0	0	0	0	0
Shaffer 116-118 Mill St.	2	0	0	0	0	22	0
Subtotal		0	1	0	0	30	3

East Water St. Reach

PROP	STP	NAILS	CUT.N	WIRE.N	COINS	STAIN	CANS
Green	1/A2 Midde	0	0	0	0	0	1
Green	2/A2 Midde	0	0	0	0	0	0
Green	3/A2 Midde	3	0	0	0	0	0
Green	4/A2 Midde	0	0	3	0	0	0
Green/BHT 1	A2 (0-10)	5	0	0	0	0	0
Green/BHT 1	A2 (10-20)	3	0	0	0	0	0
Green/BHT 1	A2 (20-30)	0	0	0	0	0	0
Green/BHT 1	A2 (30-40)	1	0	0	0	0	0
Green/BHT 1	A2 Midden	1	0	0	0	0	0
Green/BHT 1	B2 (0-10)	0	0	0	0	0	0
Rapmitco Prop. Inc.	1	7	0	0	0	0	0
Rapmitco Prop. Inc.	2	3	0	0	0	0	0
Subtotal		23	0	3	0	0	1

PROP	STP	ALUM	WIRE	HARD	SLAG	UNK	MISC
Green	1/A2 Midde	0	0	0	0	0	0
Green	2/A2 Midde	0	0	0	0	2	0
Green	3/A2 Midde	0	0	0	0	1	0
Green	4/A2 Midde	0	0	0	0	0	0
Green/BHT 1	A2 (0-10)	0	0	0	0	12	0
Green/BHT 1	A2 (10-20)	0	0	0	0	6	0
Green/BHT 1	A2 (20-30)	0	0	0	0	8	0
Green/BHT 1	A2 (30-40)	0	0	0	0	2	0
Green/BHT 1	A2 Midden	0	0	0	0	0	0
Green/BHT 1	B2 (0-10)	0	0	0	0	1	0
Rapmitco Prop. Inc.	1	0	0	0	0	0	0
Rapmitco Prop. Inc.	2	0	0	0	0	0	0
Subtotal		0	0	0	0	32	0

Airport Clearance Reach

PROP	STP	NAILS	CUT.N	WIRE.N	COINS	STAIN	CANS
Baltimore Life Ins. E. Main	2	0	0	0	0	0	0
Bassinger 836 E. Main St.	1	0	0	0	0	0	31
Bassinger 836 E. Main St.	2	1	0	0	0	0	0
Clark 784 E. Church St.	2	0	0	0	0	0	0
Hendricks 775 E. Church St.	2	0	0	0	0	0	0
Hendricks 775 E. Church St.	4	0	0	1	0	1	0
J. Caruso 770 E. Church St.	1	1	0	0	0	0	0
Kuntz 772 E. Main St.	1	1	0	0	0	0	0
Santonica 852 E. Main St.	1	0	0	0	0	0	0
Santonica 852 E. Main St.	2	0	0	0	0	0	0
Stamm 854 E. Main St.	3	0	0	0	0	0	0
Yost 215 Race St.	2	0	0	0	0	0	0
Yost 215 Race St.	3	1	0	0	0	0	0
Yost 215 Race St.	4	20	0	0	0	0	0
Subtotal		24	0	1	0	1	31

PROP	STP	ALUM	WIRE	HARD	SLAG	UNK	MISC
Baltimore Life Ins. E. Main	2	0	0	0	0	1	0
Bassinger 836 E. Main St.	1	0	0	0	0	0	0
Bassinger 836 E. Main St.	2	0	0	0	0	0	0
Clark 784 E. Church St.	2	0	0	0	0	2	0
Hendricks 775 E. Church St.	2	0	0	0	0	2	0
Hendricks 775 E. Church St.	4	0	0	0	0	1	0
J. Caruso 770 E. Church St.	1	0	0	0	0	0	0
Kuntz 772 E. Main St.	1	0	0	0	0	0	0
Santonica 852 E. Main St.	1	0	0	0	0	0	1
Santonica 852 E. Main St.	2	0	0	0	0	1	0
Stamm 854 E. Main St.	3	0	0	0	0	3	0
Yost 215 Race St.	2	0	0	0	0	1	0
Yost 215 Race St.	3	0	0	0	0	0	0
Yost 215 Race St.	4	0	0	0	0	0	0
Subtotal		0	0	0	0	11	1

Castanea Township Reach

PROP	STP	NAILS	CUT.N	WIRE.N	COINS	STAIN	CANS
Hammermill Water Tank Region	1	0	0	0	0	0	0
Hammermill Water Tank Region	4	0	0	0	0	0	0
Rt. 220 Castanea Firehall	1	0	0	0	0	0	0
Subtotal		0	0	0	0	0	0

PROP	STP	ALUM	WIRE	HARD	SLAG	UNK	MISC
Hammermill Water Tank Region	1	0	0	1	0	2	0
Hammermill Water Tank Region	4	0	0	0	1	0	0
Rt. 220 Castanea Firehall	1	0	0	1	0	0	0
Subtotal		0	0	2	1	2	0

Lower Lockport Reach

PROP	STP	NAILS	CUT.N	WIRE.N	COINS	STAIN	CANS
Donovan (023)	1	3	7	1	0	0	0
Donovan (023)	2	0	0	0	0	0	0
Donovan (023)	4	4	5	5	0	0	0
Donovan (023)	5	7	4	0	1	0	0
Englert-Trailer (017)	1	0	0	0	0	0	0
Englert-Trailer (017)	2	0	1	0	0	0	0
Englert-Trailer (017)	3	13	2	8	0	1	0
Karchner (008)	1	0	0	2	0	0	0
Kreamer (013)	2	0	0	0	0	0	0
Kreamer (013)	3	0	0	1	0	0	0
Laubach (021)	1	0	0	1	0	0	0
Laubach (021)	2	0	0	0	0	0	0
Laubach (021)	3	0	3	1	0	0	0
Laubach (021)	5	0	0	0	0	0	0
Lockhouse (001) Raible	1	1	1	0	0	0	0
Lockhouse (001) Raible	2	0	0	0	0	0	0
Lockhouse (001) Raible	3	0	0	0	0	0	0
Lockhouse (001) Raible	4	0	0	0	0	0	0
Lockhouse (001) Raible	5	1	1	2	0	0	0
Lockhouse (001) Raible	6	13	2	2	0	0	0
Lockhouse (001) Raible	7	0	0	0	0	0	0
Long (016)	1	2	0	0	0	0	15
Long (016)	2	0	0	1	0	0	0
Long (016)	3	8	1	3	0	0	0
Melingers (026)	2	12	0	0	1	0	0
Melingers (026)	3	21	7	3	0	0	0
Melingers (026)	4	24	2	5	1	0	0
Peters (018)	1	0	0	0	0	0	0
Peters (018)	3	0	0	0	0	0	0
Peters (018)	4	0	0	2	0	0	0
Pokorney/Saudi (025)	1	4	9	5	0	0	0
Pokorney/Saudi (025)	2	7	0	2	0	0	0
Pokorney/Saudi (025)	3	1	0	0	0	0	0
Poremsky (022)	2	1	0	0	0	0	0
Rechel (020)	1	0	0	0	0	0	0
W. Branch/N. Bank	1	16	4	3	0	0	0
Wasson (019)	1	1	1	5	0	0	0
Wolfe (014)	1	1	0	0	0	0	0
Subtotal		140	50	52	3	1	15

PROP	STP	ALUM	WIRE	HARD	SLAG	UNK	MISC
Donovan (023)	1	0	0	2	0	3	0
Donovan (023)	2	0	0	1	0	0	0
Donovan (023)	4	1	0	2	0	5	0
Donovan (023)	5	0	0	2	0	5	0
Englert-Trailer (017)	1	0	0	0	0	2	0
Englert-Trailer (017)	2	0	0	0	0	5	0
Englert-Trailer (017)	3	0	0	3	0	22	1
Karchner (008)	1	0	0	0	0	5	2
Kreamer (013)	2	0	0	1	0	0	0
Kreamer (013)	3	0	0	0	0	0	1
Laubach (021)	1	0	0	0	0	2	0
Laubach (021)	2	0	0	0	0	5	0
Laubach (021)	3	0	0	0	0	10	0
Laubach (021)	5	0	0	0	0	1	0
Lockhouse (001) Raible	1	0	1	0	0	5	1
Lockhouse (001) Raible	2	0	0	0	0	1	0
Lockhouse (001) Raible	3	0	2	0	0	0	1
Lockhouse (001) Raible	4	0	0	0	0	1	0
Lockhouse (001) Raible	5	0	8	0	0	1	0
Lockhouse (001) Raible	6	0	0	1	0	1	0
Lockhouse (001) Raible	7	0	0	1	0	0	0
Long (016)	1	0	0	0	0	0	0
Long (016)	2	0	0	0	0	0	0
Long (016)	3	0	1	0	0	0	2
Melingers (026)	2	1	0	1	0	0	1
Melingers (026)	3	1	0	1	0	0	0
Melingers (026)	4	0	1	2	0	0	1
Peters (018)	1	0	0	0	0	3	0
Peters (018)	3	0	0	0	0	6	0
Peters (018)	4	0	0	0	0	3	0
Pokorney/Saudi (025)	1	0	3	4	0	0	0
Pokorney/Saudi (025)	2	0	4	1	0	3	0
Pokorney/Saudi (025)	3	0	0	0	0	3	1
Poremsky (022)	2	0	0	0	0	0	0
Rechel (020)	1	0	2	0	0	2	0
W. Branch/N. Bank	1	0	3	5	0	2	2
Wasson (019)	1	0	0	0	0	0	0
Wolfe (014)	1	0	0	0	0	0	0
Subtotal		3	25	27	0	96	13

Upper Lockport Reach

PROP	STP	NAILS	CUT.N	WIRE.N	COINS	STAIN	CANS
A. Crissman (061)	1	11	0	1	0	0	0
A. Crissman (061)	2	0	0	0	0	0	0
A. Crissman (061)	3	2	0	0	0	0	0
Barzona (042)	1	1	0	1	0	0	0
Barzona (042)	2	2	2	8	0	0	0
Barzona (042)	3	0	0	0	0	0	0
Eisenhower (055)	1	1	0	0	0	0	0
Hobbs (034)	1	1	0	0	0	0	0
Mc Gill/Widman (035) Harris	1	0	0	0	0	0	0
Mc Gill/Widman (035) Harris	2	3	0	0	0	0	0
Meyers/Swartz (043)	1	0	0	0	0	0	0
Meyers/Swartz (043)	2	0	2	0	0	0	0
Meyers/Swartz (043)	3	4	2	3	0	0	0
O. Kreamer (059)	1	3	0	0	0	0	0
Rickart (056)	1	2	0	1	0	0	0
Rote (065)	1	0	0	0	0	0	0
Rote (065)	2	1	0	0	0	0	2
Ryan (033)	1	0	0	1	1	0	0
Ryan (033)	2	0	0	1	0	0	0
T. Probst (046)	1	3	0	1	0	0	0
Weaver (045)	3	1	0	16	0	0	1
Williams (041)	2	0	0	0	0	0	0
Subtotal		35	6	33	1	0	3

PROP	STP	ALUM	WIRE	HARD	SLAG	UNK	MISC
A. Crissman (061)	1	0	0	0	0	17	0
A. Crissman (061)	2	0	1	0	0	1	0
A. Crissman (061)	3	0	0	0	0	4	0
Barzona (042)	1	0	0	1	0	6	0
Barzona (042)	2	0	0	2	0	0	0
Barzona (042)	3	0	0	0	0	2	0
Eisenhower (055)	1	0	0	0	0	0	0
Hobbs (034)	1	1	0	0	0	0	0
Mc Gill/Widman (035) Harris	1	0	0	1	1	0	0
Mc Gill/Widman (035) Harris	2	0	0	0	0	1	0
Meyers/Swartz (043)	1	0	0	0	0	6	0
Meyers/Swartz (043)	2	0	0	0	0	0	0
Meyers/Swartz (043)	3	0	0	0	0	3	1
O. Kreamer (059)	1	0	0	0	0	0	0
Rickart (056)	1	0	0	0	0	0	0
Rote (065)	1	0	0	0	0	1	0
Rote (065)	2	1	0	0	0	0	1
Ryan (033)	1	0	0	0	0	5	0
Ryan (033)	2	0	0	1	0	6	0
T. Probst (046)	1	0	0	0	0	0	0
Weaver (045)	3	3	1	1	0	36	0
Williams (041)	2	0	0	0	0	1	0
Subtotal		5	2	6	1	89	2

Rural Woodward Township

PROP	STP	NAILS	CUT.N	WIRE.N	COINS	STAIN	CANS
Haussener/Hanna	2	0	0	0	0	0	0
Haussener/Hanna	3	14	0	0	0	0	0
Packer Farmstead	2	15	0	0	0	0	0
Packer Farmstead	3	0	0	0	0	0	0
Packer Farmstead	4	0	4	0	0	0	0
Packer Farmstead	5	0	0	0	0	0	0
Packer Farmstead	6	0	1	0	0	0	0
Probst Farmstead	1	0	0	0	0	0	0
Probst Farmstead	3	0	0	0	0	0	0
Spangler	1	0	0	2	0	0	0
Stern Farmstead	3	0	0	2	0	0	0
Subtotal		29	5	4	0	0	0

PROP	STP	ALUM	WIRE	HARD	SLAG	UNK	MISC
Haussener/Hanna	2	0	0	0	0	4	0
Haussener/Hanna	3	0	0	0	0	0	0
Packer Farmstead	2	0	0	0	0	0	0
Packer Farmstead	3	0	0	0	0	1	0
Packer Farmstead	4	0	0	0	0	2	0
Packer Farmstead	5	0	0	0	0	0	1
Packer Farmstead	6	0	0	0	0	0	0
Probst Farmstead	1	0	0	0	0	1	0
Probst Farmstead	3	0	0	1	0	0	0
Spangler	1	0	0	0	0	0	0
Stern Farmstead	3	1	0	0	0	1	0
Subtotal		1	0	1	0	9	1

Queens Run Reach

PROP		STP	NAILS	CUT.N	WIRE.N	COINS	STAIN	CANS
Chapman #11		2	0	0	0	0	0	0
Chapman #11		3	0	0	0	0	0	0
Chapman #11		4	0	0	0	0	0	0
Rupert #1		1	3	0	0	0	0	0
Rupert #1		2	0	0	1	0	1	0
	Subtotal		3	0	1	0	1	0

PROP		STP	ALUM	WIRE	HARD	SLAG	UNK	MISC
Chapman #11		2	0	0	0	0	2	0
Chapman #11		3	0	0	0	0	3	0
Chapman #11		4	0	0	0	0	4	0
Rupert #1		1	0	0	0	0	2	0
Rupert #1		2	0	3	0	0	1	0
	Subtotal		0	3	0	0	12	0